

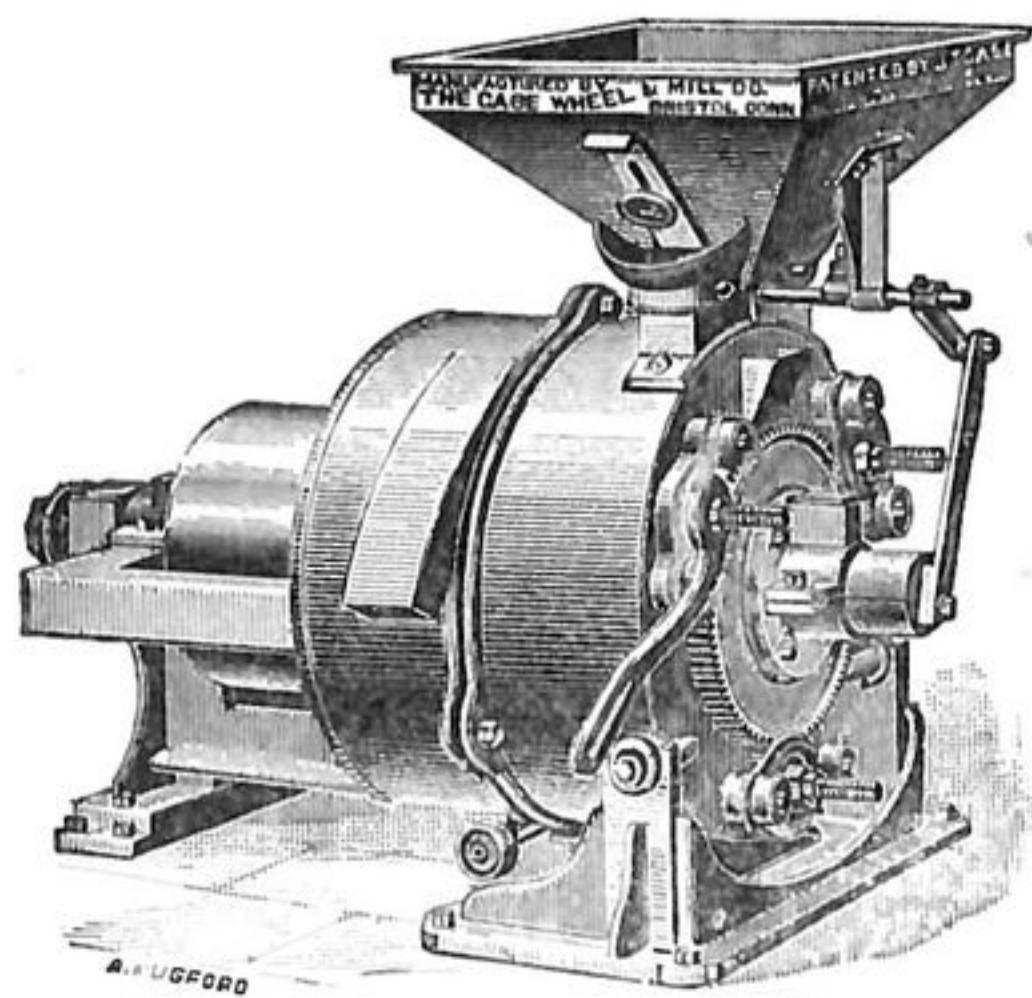


PUBLISHED EVERY MONDAY MORNING.

VOL. XX. No. 6.

BUFFALO, N. Y., APRIL 8, 1889.

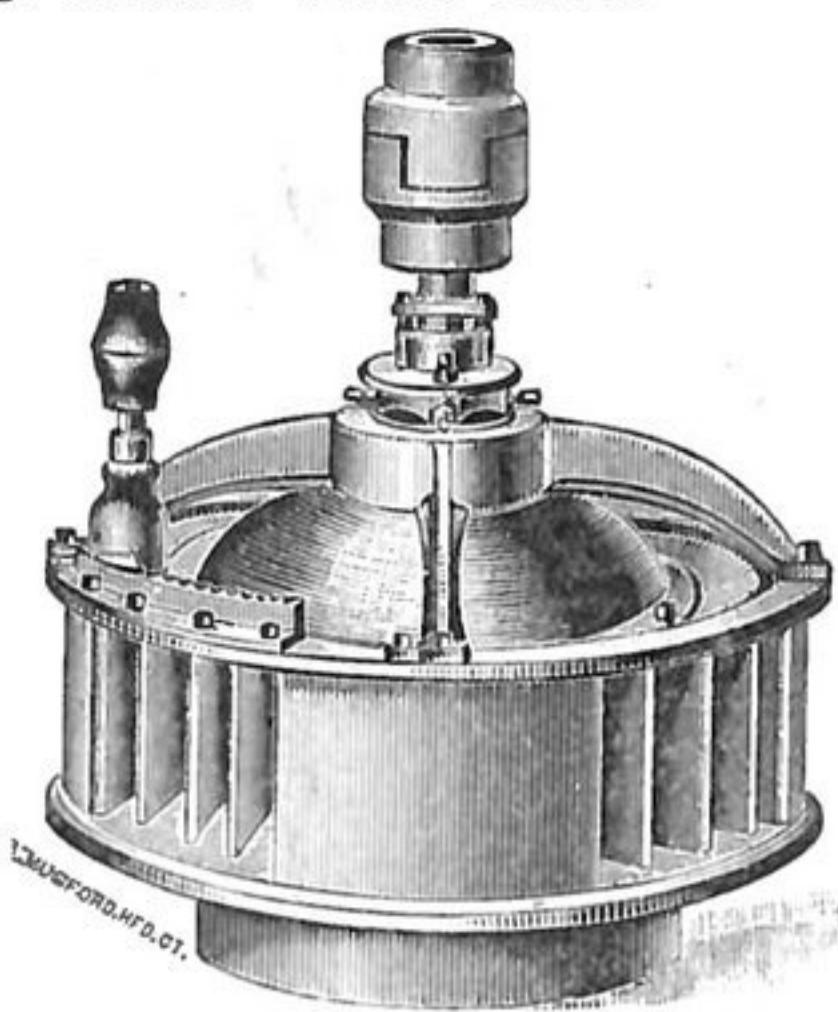
\$1.50 PER YEAR.



VICTORY OVER ALL OTHERS. SINGLE & DOUBLE VERTICAL GRINDING MILLS. (J. T. CASE'S PATENT.)

FACTS ARE MIGHTIER THAN ASSERTIONS. READ WHAT THEY SAY:

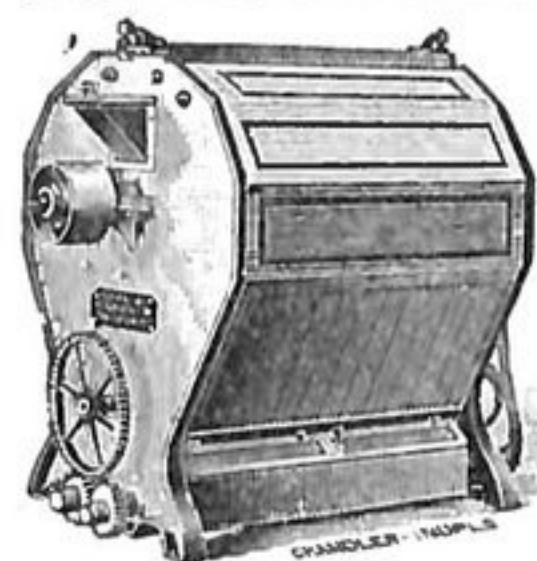
"Our 20-inch mill made by the Case Wheel & Mill Co. is in every respect satisfactory, easy to handle, and best results obtained of any mill in the country, with same quantity coal and power."—A. S. RUSSELL & CO., Meriden, Conn.
"Superior to any mill in use."—GEO. WESTON, Bristol, Conn.
"The best satisfaction in quantity and quality."—CHILD'S ELEVATOR, Manchester, Ct.
"We take pleasure in recommending it."—GARLAND LINCOLN & CO., Worcester, Mass.
SEND FOR CATALOGUE—ILLUSTRATED AND DESCRIPTIVE.



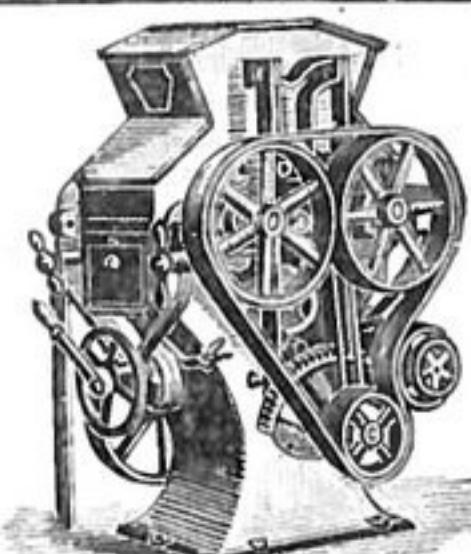
The Improved National Turbine Water Wheel

The Best for Economy; The Best for Durability; The Best for Power. ONE THOUSAND FIVE HUNDRED NATIONAL WATER WHEELS IN USE Prove that our Assertions are Supported by the Leading Manufacturers in the Country. Send for illustrated catalogue and prices to the manufacturers.

The Case Wheel & Mill Co., Bristol, Conn.



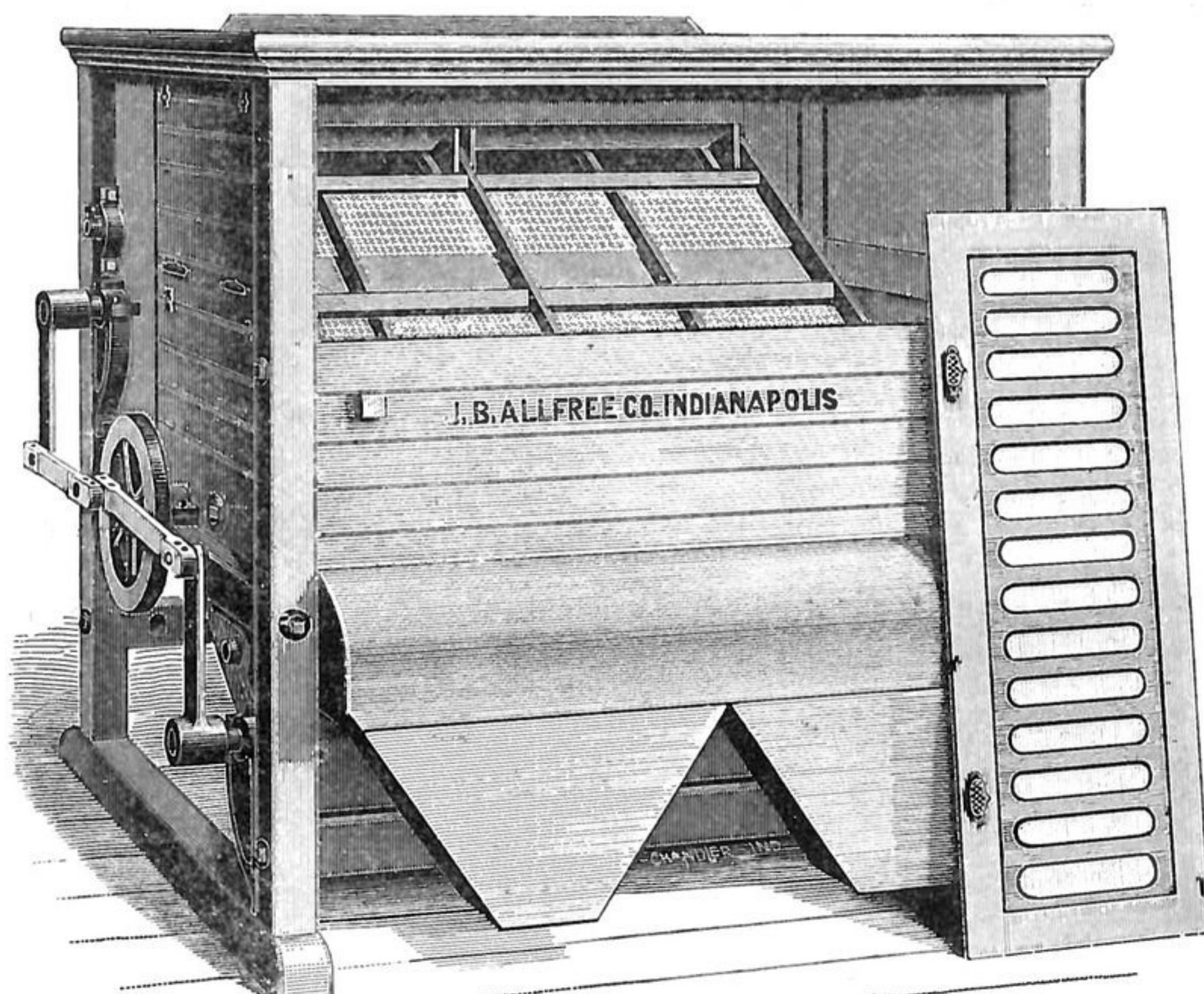
THE ONLY NOISELESS SIEVE SCALPER.



Immense Capacity.

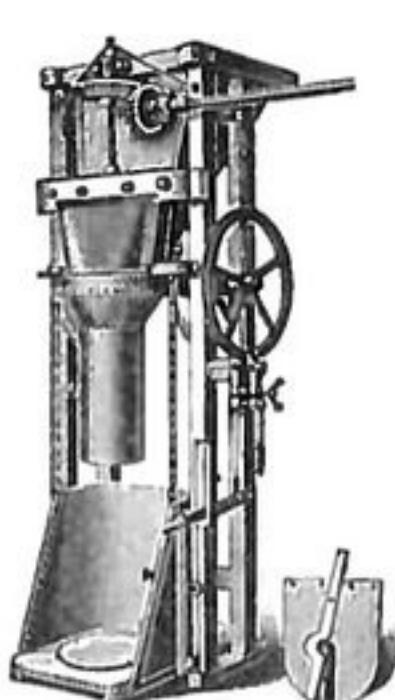
—o—
Power
Required
Merely
Nominal.
—o—

It will Take Care of
3 or 4 Breaks in a
100-Barrel Mill.



Buy our Scalpers and
thus avoid the terrible racket made by
other machines; ours
is Noiseless.

—o—
It will Take Care of
1 Break in a 500-
Barrel Mill.



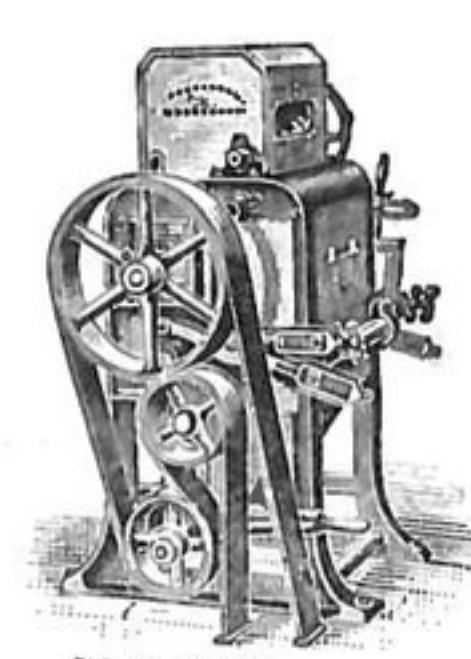
The J. B. Allfree Sieve Scalper.

ADDRESS FOR PRICES, ETC.

The J. B. Allfree Co., Indianapolis, Ind.

Mill Builders and General Mill Furnishers.

DUFOUR BOLTING CLOTH A SPECIALTY.



Some Millers' Opinions EXPRESSED THIS YEAR, 1889.

SHREVE, O., Jan. 25, 1889.
THE CASE MFG. CO.

Gentlemen: We called at Bank Jan. 22d and paid our last note, which we believe closes our dealings so far as our contract with you for remodeling our mills is concerned. We want to say that we are entirely satisfied with all our dealings with you. Our mill is all we could expect, and is doing us good work. Extending to you our best wishes, we remain,

Very respectfully yours,
FOLTZ & BRENEMAN.

WAVERLY, O., JAN. 27, 1889.
THE CASE MFG. CO.

Gentlemen: Although it has been but a few weeks since I have gotten my Waverly Roller Mills started as recently re-furnished with your system of breaks and rolls, yet I have already learned to my satisfaction that your outfit of milling machinery is the best in use to-day. I am now making a grade of flour that is equaled by few and excelled by none, in fact superior to any flour produced in this part of Ohio, and is fast distancing all competitors in the market. I can conscientiously recommend you as General Mill Furnishers.

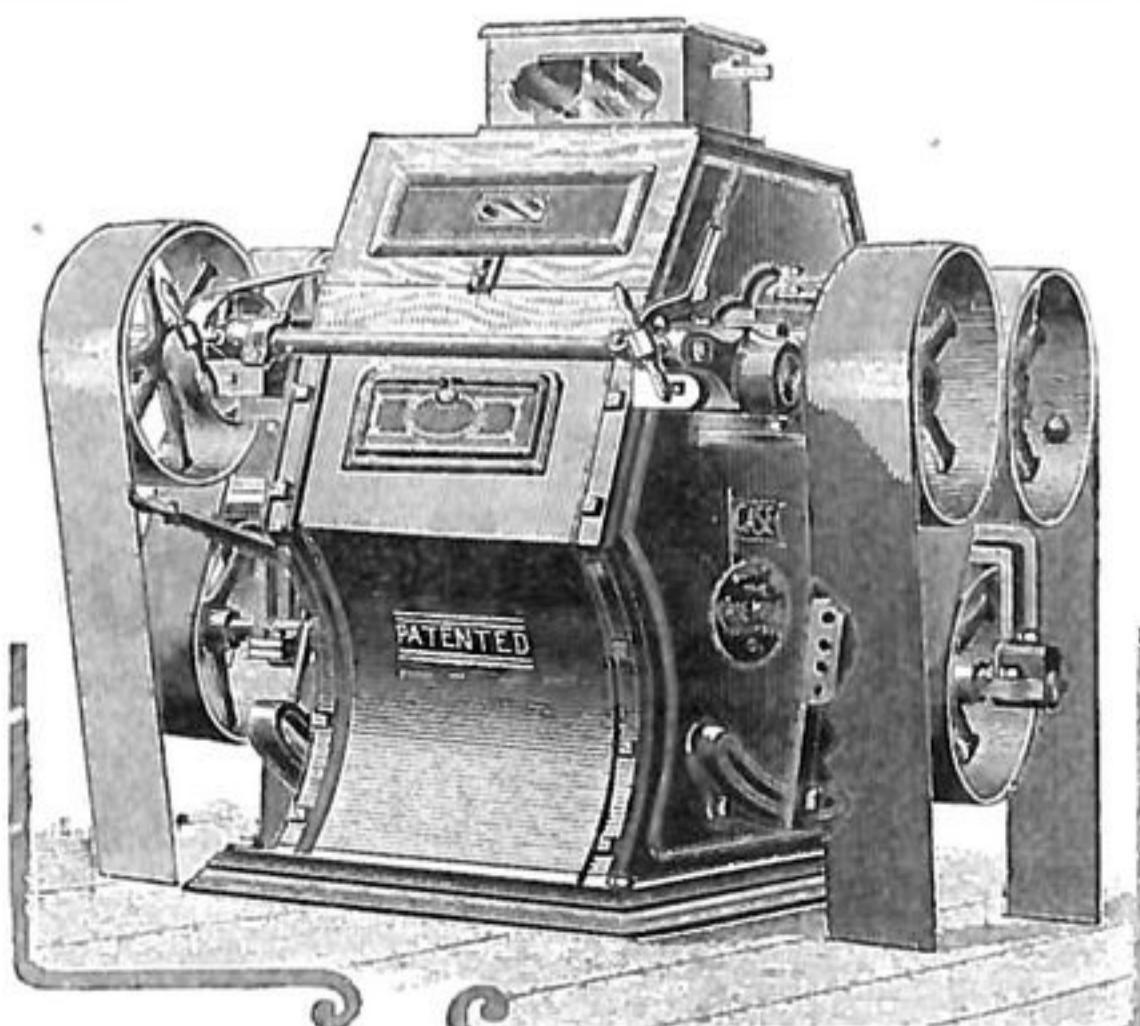
Yours truly,
JAS. EMMETT.

E. M. NEWTON. D. B. SMITH. G. TERRY.
OFFICE OF GUTHRIE MILL CO.,
GUTHRIE, KY., Feb. 26, 1889.

CASE MFG. CO.

Gentlemen: Yours of the 20th to hand and in answer to inquiry about the five Inter-Elevator Flour Dressers bought of you will say that they are working perfectly satisfactory, and we regard them as being the best bolts we have ever seen, and if we had to build another mill, would use no other. We will take pleasure in showing and recommending them to any one who may be in need of a Flour Dresser. Wishing you much success in the future, we remain,

Yours truly,
GUTHRIE MILL CO.,
By E. M. Newton.



The Gem Roll of the World.

LEONIDAS, MICH., Feb. 4, 1889.
THE CASE MFG. CO.

Gentlemen: In reply to yours of the 31st ult., as to how I liked your machinery, would say I have a 3-break mill using 3 double stands of 6x18 Case rolls, one double stand of 6x15 rolls made by another firm. We started our mill September 1, 1888, and I must say *your rolls are more than you claim for them*. They started from the word "go." Not a single "hot journal," or any thing else to cause any trouble in the least. The other stand has been a continual bother from the start, running hot, and the feed would not work only in bunches, and let me say right here that *they cost me more money than the Case did*, and I mean in the near future to displace it by a *Case*. Your feed is *simply perfect*. It feeds even the full length of the rolls, and the beauty of all is we can stop and start the Case Rolls without touching a single lever; the other stands wants two men to stop and start. I also have a double stand of 9x18 Case rolls for feed. It does good work with half the power a 36-inch buhr took for same amount of work. Should you wish to send any parties here to see my mill at work, I can prove to them all I have said. With very best wishes to the Case Company, I am, very respectfully yours,

GEO. ENGEL
Successor to Espenhai & Engel.

WE BUILD NONE BUT FIRST-CLASS MILLS AND WILL GUARANTEE Each Mill We Build to Produce Results Excelled by None

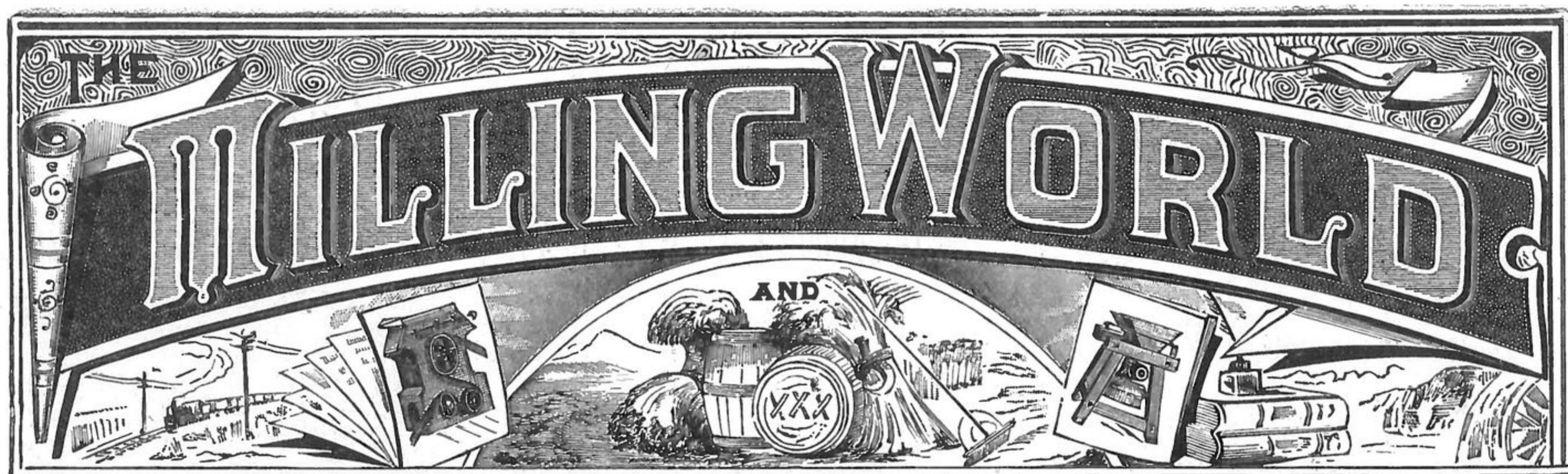
COMPLETE LINE OF MILL SUPPLIES AT LOW PRICES

We have the most Complete Plant for Regrinding and Recorrugating Rolls, and put in Any Style Cut Desired.

MACHINE WORK OF ALL KINDS DONE PROMPTLY.

—ADDRESS—

THE CASE MFG. CO., COLUMBUS, O.



CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XX. No. 6.

BUFFALO, N. Y., APRIL 8, 1889.

\$1.50 PER YEAR.

AMONG the recent notable changes in mill-building and mill-furnishing firms one of the most important is the association of Col. C. A. Winn, the well-known milling engineer, with the J. B. Allfree Company, of Indianapolis, Ind. It is announced that Col. Winn has become associated with and financially interested in that prominent establishment. We congratulate the J. B. Allfree Company on their acquisition, and we congratulate Col. Winn on his new connection. The company is making steady and rapid strides to prosperity, and with Col. Winn associated with them, they will go forward still more rapidly. He has built several of the largest mills in the United States, and their success has been unprecedented. Success to the new associates all around.

RECENT rumors indicate that there is a serious disturbance in the Central Millers' Association. It is stated that the country millers in that organization are not satisfied with the doings of the city millers, the latter being the ruling element in the association, and the rumpus at a late meeting in St. Louis developed a split that will probably wreck the association. It is regrettable that the conflict between city and country interests could not be compromised in a satisfactory way. The country millers claim that they "hold the bag" for the city millers, and the city millers claim that they are performing that office for the country millers. It seems to be another case of "irrepressible conflict," and it serves to show the great difficulty that lies in the way of an organization of the milling interests of the United States.

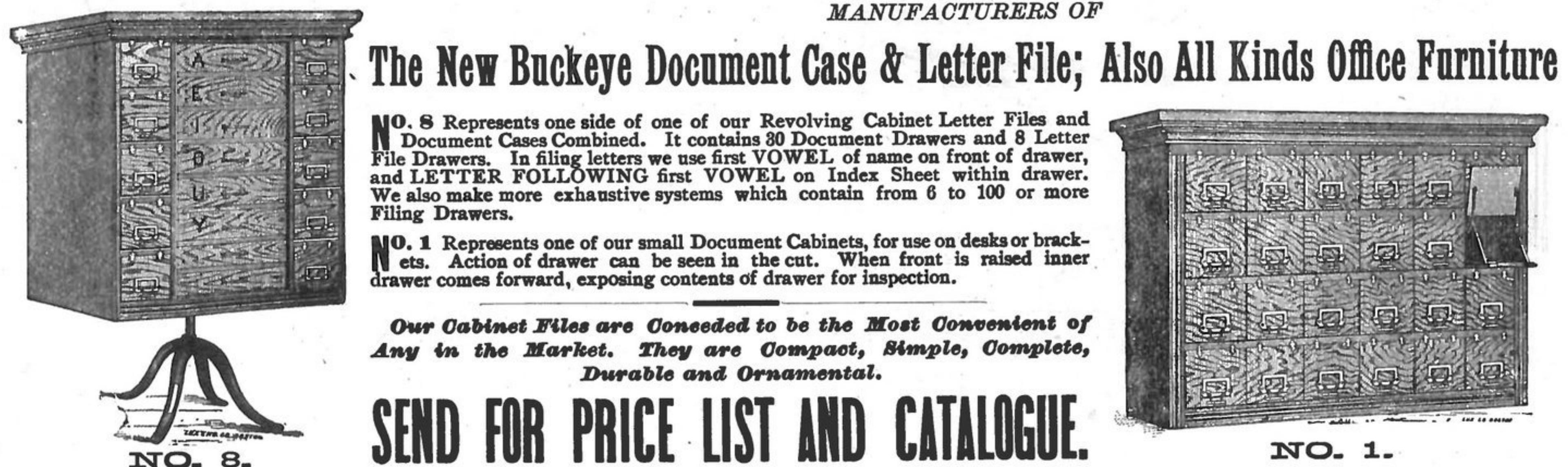
WHEAT must find its real value in flour. Flour is worth just what it will sell for. Flour is good when it is cheap. When it is dear, it is no good. Great Britain can do without us, but we can not do without Great Britain. The foreign trade will take our flour if it is cheap. If it is dear it will not take it. It will use its own flour, Hungarian flour, any flour or no flour. It will eat mud, but it will not pay fancy prices for the product of American mills.—*Minneapolis Wisdom*. That's the sort of bosh that oozes out like a stream of ozocerite from the Minnesota milling center. What infinite wisdom! What symmetrical sense! What sane delirium! Is there any man outside a fool-foundry who really believes that, because two consecutive abundant harvests in Russia have enabled Great Britain to keep down prices on the American shortage, Great Britain really can do without us? Suppose the Russian harvest of 1889 sinks back to or below the average. What then? Will the Minneapolis wiseacres, who are trying to conduct the whole American milling industry in the single interest of Minneapolis, look to see Britons eating mud so long as they can get American wheat and flour? The foreign trade will take our flour at whatever price supply and demand create. The rest of the bosh quoted is "no-grade" rot, soured fluff and empty gabble by a bumptious ignoramus.

SOME ignorant and thoughtless writers are constantly asserting that the American grain and flour trade with Great Britain is ruined, and that Russia has supplanted the United

States as a source of supply for Great Britain. Several things should be kept in view beside that assertion: 1. The United States crop of 1888 has been drawn upon by Great Britain quite as liberally as the quantity, quality and price of that crop would justify her in drawing. 2. Russia was able to supply an unusually large quantity of wheat from her two abundant harvests in 1887 and 1888, and the very abundance of her crops depressed prices sufficiently to reflect depressingly on prices in other supply countries. 3. Britons do not propose to abandon American wheat. They consider it indispensable. They are even now preparing to invest millions of dollars in elevators to contain hard Dakota and Minnesota wheat for British mills. They would like to have that wheat instead of Minneapolis flour, because it would make their mills prosperous to grind the grain, but if they can not get the grain they will take the flour, for, even if they secure a sufficient supply of Russian and other inferior wheats to grind in England, they will still need "strong" flour to mix with it, and they will use the American flour for that purpose. 4. The exporters in New York are mostly Britons, and that means that they will not destroy a profitable business just to answer this or that spite or prejudice. 5. Most of the grain-carrying ships are British ships, and they will find better business in carrying merchandise to the United States and returning grain-laden than in sailing partially empty to other countries for grain cargoes. 6. Account must be made of the unapproachable superiority of the American grain and flour. That element means much. Any close observer will see that American flour has served two great purposes in Great Britain. It has supplied the most fastidious customers with the finest article, and it has aided by admixture to float the inferior flours made from Russian, Indian and other inferior wheats into consumption. An English market without fine American flour is an impossibility. 7. The ever-imminent danger of war in Europe makes any European or Asiatic source of wheat supply for Great Britain very precarious. Should Great Britain cut off absolutely her grain and flour drafts upon the United States, and should the American crop be proportionately reduced in the aggregate, a sudden war would put Great Britain in danger of famine. If the wheat were not in existence she could not buy it at any price. It is safe to say that the very last foolish thing Great Britain will ever do will be to cut away from America, a profoundly peaceful country reasonably sure to have always a magnificent surplus of fine wheat, and to depend upon Europe and Asia, countries in which war is always possible, and whose wheat at the best is not good enough to answer her wants. She may use enough of their grain to enable her to pound down American prices, she may declare her unalterable determination to do without American grain, but all the time she is taking more and more of it. On large crops she revels in it. On short crops she hammers prices with the Russian and Indian sledge-hammer. Always she takes about all there is to spare. She is a good customer. She wants the best articles at the lowest prices. We have the best article. She may haggle over the price, but in the end the wise old shrew gets the grain. History will go on repeating itself.

The Canton Cabinet Filing Case Company, Canton, Ohio,

MANUFACTURERS OF

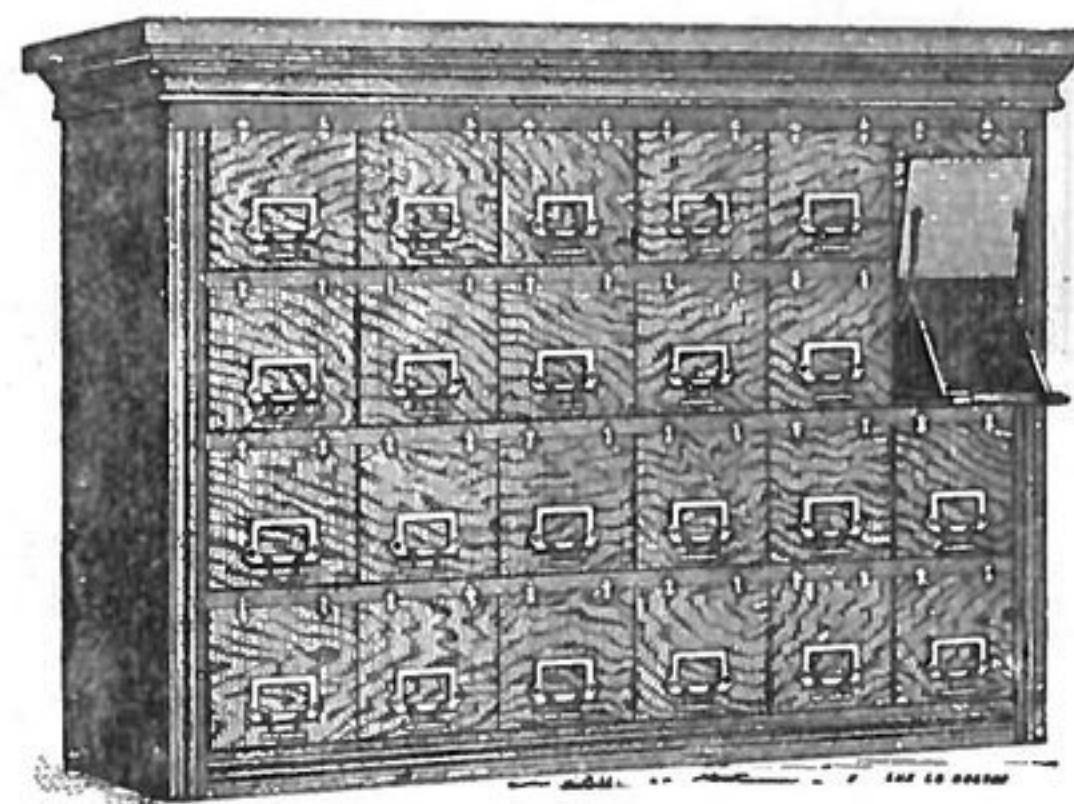


NO. 8 Represents one side of one of our Revolving Cabinet Letter Files and Document Cases Combined. It contains 80 Document Drawers and 8 Letter File Drawers. In filing letters we use first VOWEL of name on front of drawer, and LETTER FOLLOWING first VOWEL on Index Sheet within drawer. We also make more exhaustive systems which contain from 6 to 100 or more Filing Drawers.

NO. 1 Represents one of our small Document Cabinets, for use on desks or brackets. Action of drawer can be seen in the cut. When front is raised inner drawer comes forward, exposing contents of drawer for inspection.

Our Cabinet Files are conceded to be the Most Convenient of Any in the Market. They are Compact, Simple, Complete, Durable and Ornamental.

SEND FOR PRICE LIST AND CATALOGUE.



NO. 1.

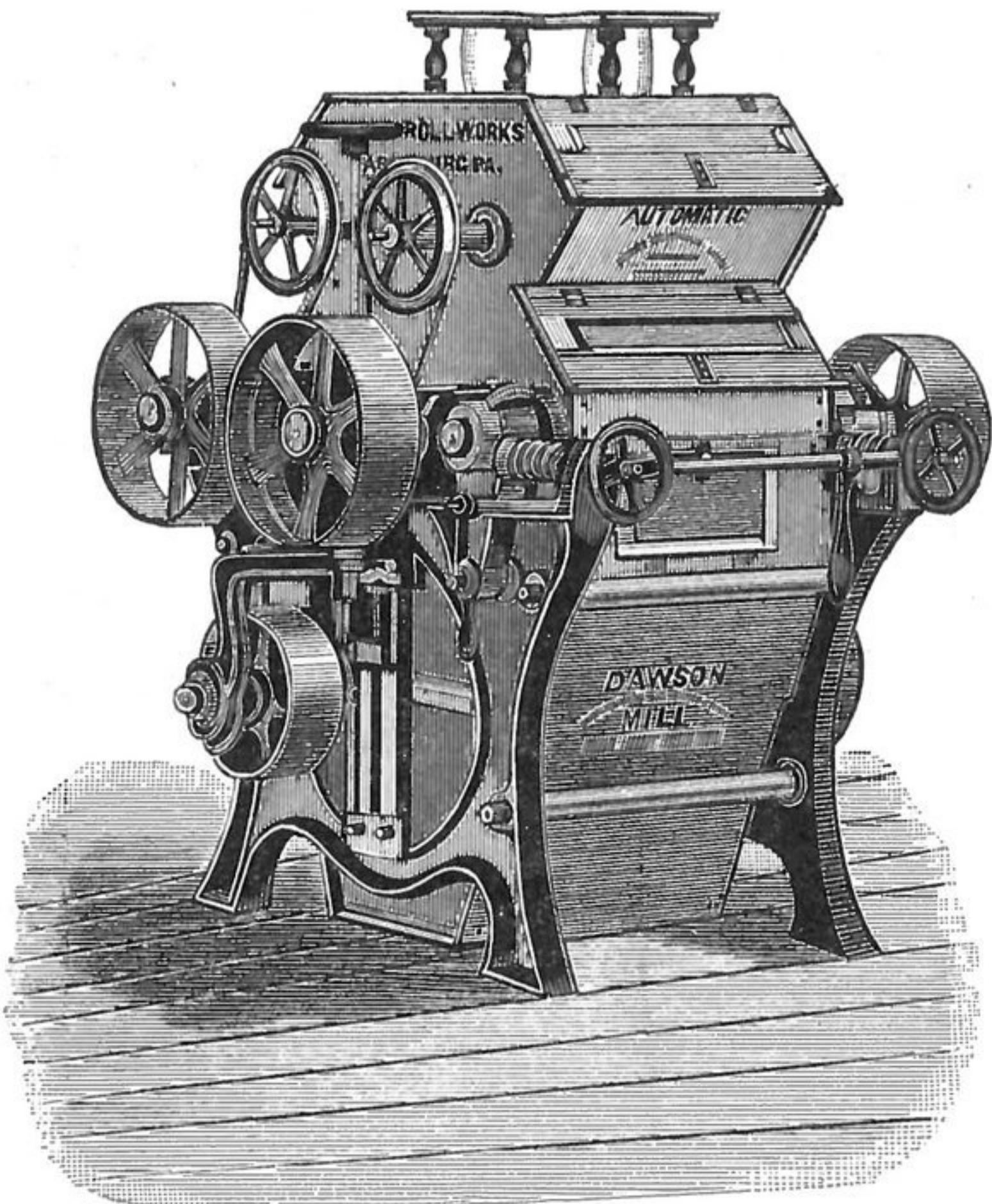
Dawson's Roller Mill

Is acknowledged to be the very best in the market. It has our Patent Automatic Centrifugal feeder, never failing to feed the stock the full length of rolls in an even sheet. It is the Latest and Best feed out, uses less power and is simple in construction. It can be placed on any style of machine with little expense. We use for roll bearings phosphor-bronze metal which will admit rolls being run at any speed without heating and with little friction, and uses little oil. We use the Dawson Corrugation, which is admitted the best in long or short system mills as the action is granulating rather than CUTTING.

We have a large plant to Re-grind and Re-Corrugate Rolls.

Owing to our late increased facilities and central location we are enabled to ship goods promptly on the shortest notice.

PARTIES CONTEMPLATING REMODELING THEIR MILLS OR BUYING ANY ROLLER MACHINES ARE REQUESTED TO PUT THEMSELVES IN CORRESPONDENCE WITH US.



FOR PRICE LISTS AND CIRCULARS, ADDRESS,

Dawson Roll Works, Harrisburg, Pa.

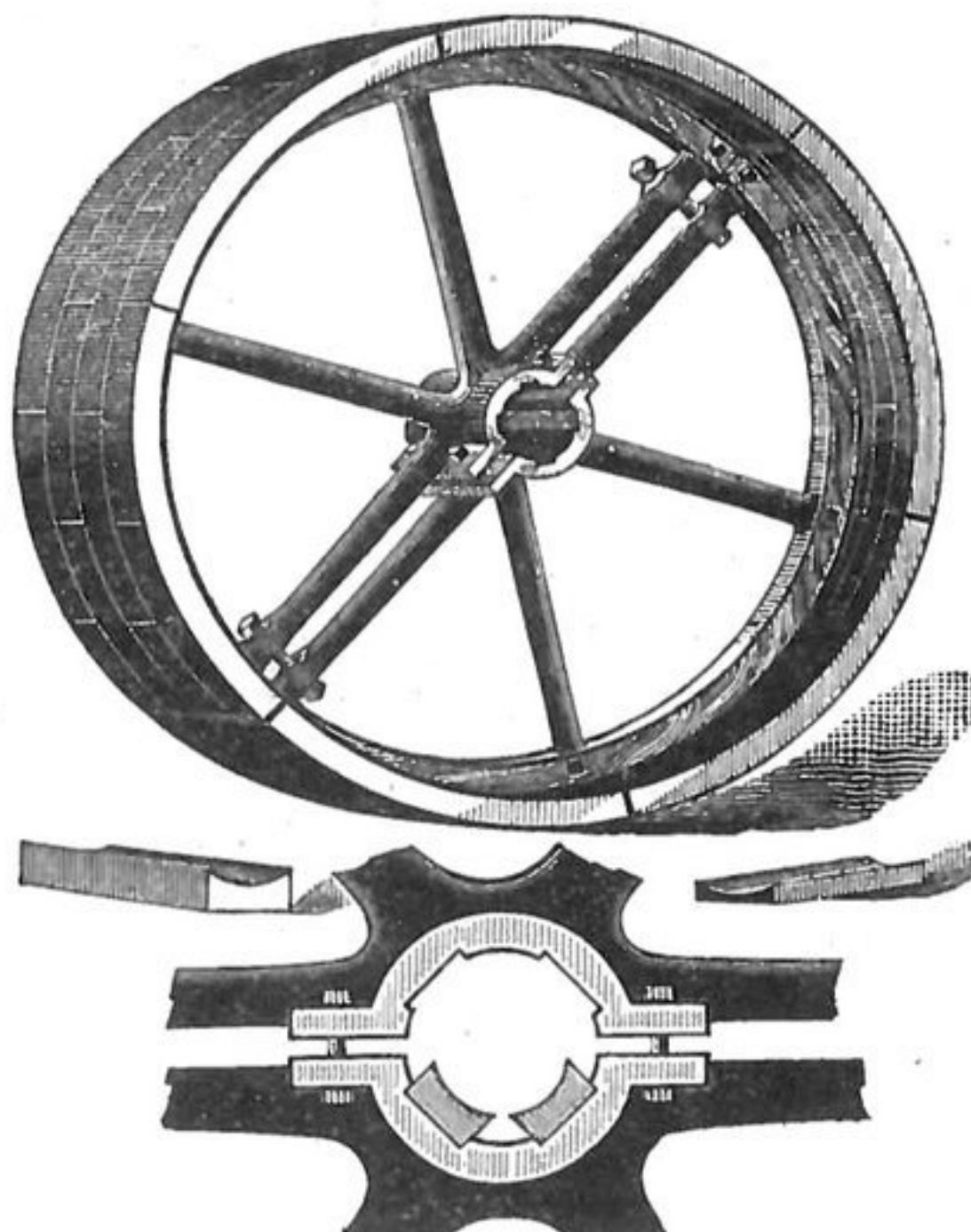
C. H. BIRD & CO., KALAMAZOO, MICH.

MANUFACTURERS OF PATENT

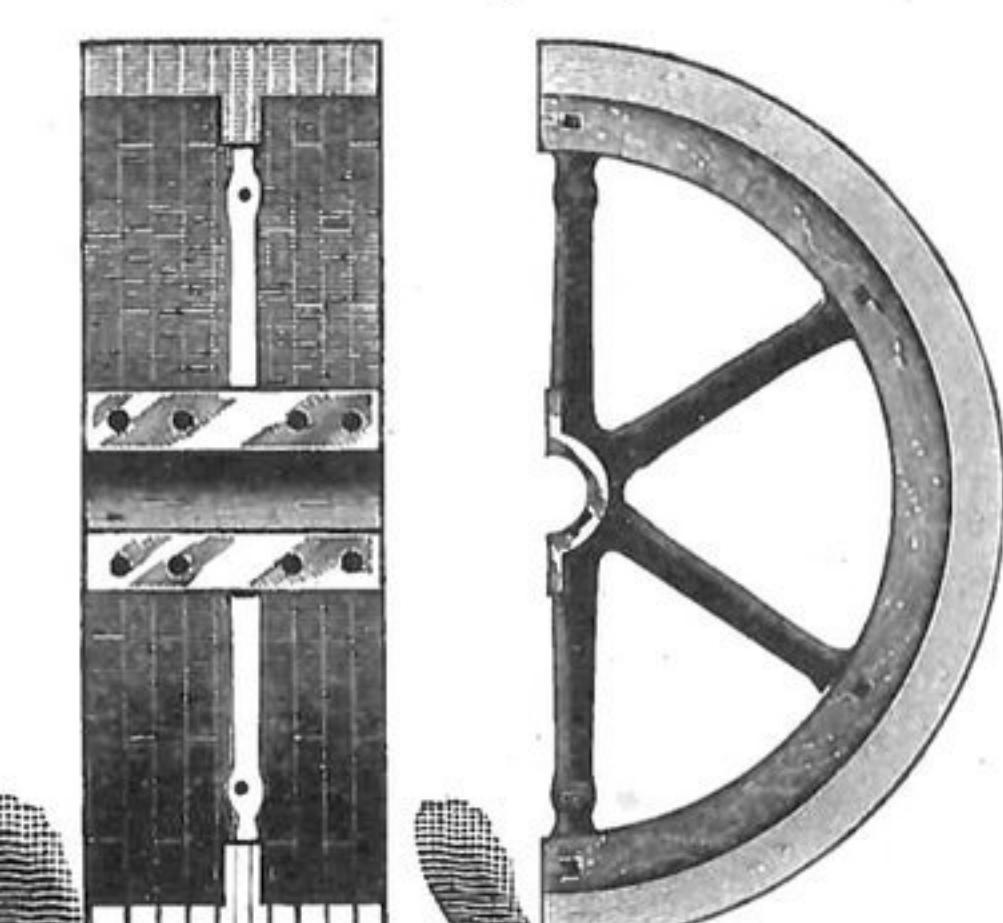
Wood Split Pulleys

WOOD RIM WITH IRON ARMS.

The Best Pulley on Earth!



Is very easily and quickly adjusted to Shaft. Has Patent Iron Bushings Interchangeable, to Fit Different Diameters of Shafts. Has FOUR or SIX Bearings on Shaft. This fastening never slips. Every Pulley strongly built and perfectly balanced.



SEND FOR CATALOGUE AND PRICE LIST.

THE MILLING WORLD

AND
CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,
Over Bank of Attica.
McFAUL & NOLAN, - - - PROPRIETORS.
THOMAS MC FAUL. JAMES NOLAN.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in unregistered letter at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Rates for ordinary advertising made known on application. Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning, to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trades.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

THE MILLING WORLD, BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

SITUATION WANTED.

Situation wanted by practical miller of 30 years' experience, 50 years old. Best references. Would take good mill on shares. B. D. FOWLER, Carlton, N. Y. 47

WANTED.

Situation by a miller of 10 years' experience. Thirty-one years of age. Married. Can give best of reference. Address, ANDREW YOUNG, Box 82, Mayville, N. Y. 25

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

MILLSTONES FOR SALE CHEAP.

Complete run of millstones, curb, spindle, hopper, etc. GARDNER MORSE, Eaton, Madison county, N. Y. 16

MILL FOR SALE.

Flour mill; water power; good location; on easy terms. For information address, THOS. BRODERICK, Byron, Olmsted County, Minn. 611

MILL PROPERTY FOR SALE.

In Central New York, on reasonable terms and easy payments. For particulars address B, care of THE MILLING WORLD, Buffalo, N. Y. 14

FOR SALE.

10 Single Sets 9x80 Stevens Rolls.
2 Single Sets 7x12 Ferriers Rolls.
2 Centrifugal Reels.
2 No. 8 Niagara Bran Dusters.
2 No. 8 Prinz Dust Collectors.
1 No. 4 Hunter Purifier.
1 No. 6 Garden City Purifier.
1 No. 1 Pyne Purifier.
1 No. 8 Richmond Brush Machine.
1 No. 2 Silver Creek Scourer.
1 No. 00 Becker Brush Machine, over 50 Run Millstones all sizes, all complete. Above Machines are in first-class condition and practically as good as new. Address J. B. DUTTON, 115 E. Fort Street, Detroit. 18tf

If you are desirous of obtaining the best Mill or Cob Crusher, send for our catalogue and be convinced that our's fill the bill. Can not fail to please you. They are guaranteed to prove as represented.

C. C. PHILLIPS,
OFFICE, 20 SOUTH BROAD STREET,
PHILADELPHIA, PA.



HORIZONTAL (underrunner.)

NEVER-FAILING WATER-POWER

FOR SALE OR TO LET.

Situated at the junction of two rivers, 95 miles from New York City, on the West Shore Railroad. Mill site against track. A NATURAL ROCK DAM with from one hundred to one thousand horse power. Railroad siding on premises. Station, post and telegraph offices in sight. Factory employees to be had at low wages. Further particulars given by addressing. 411

HOWARD FINGER, - - SAUGERTIES, N. Y.

FOR SALE OR RENT.

Grist-mill; three-run stone; splendid water power; good shipping point; rent reasonable. For particulars address, M. D. OLNEY, Irvine, Warren county, Pa. 58

FOR SALE OR EXCHANGE.

For sale or will exchange and take a good portable saw-mill as part pay, a new buckwheat and feed mill, situated in the village of Hadley, Pa. Mill has side-track to door of L. S. & M. S. R. R. on one side and public road on the other. Was built new last summer; plenty of power for a roller mill on wheat; has 30-horse-power engine. Write for particulars to H. L. AVERY, Hadley, Pa. 5

OPENING FOR FLOUR MILLS.

Mill owners can hear of an extraordinary opening for cheap labor, transportation and a rapidly increasing supply of cereals by addressing the undersigned. This great, fertile region is just beginning to cut up its vast pastures into farms, and agriculture is increasing rapidly. Colonization and immigration in steady progress. Transportation by sea and rail. This is the coming deep water seaport and commercial city of the Southwest and Mexico. Nearer to the heart of the Northwest 1,000 miles, than New York or any Atlantic port. Write for details. THE PORT ARANSAS COMPANY, Corpus Christi, Texas 5

MILL MACHINERY FOR SALE.

One 24-Inch Portable Mill, wood frame, capacity 15 to 20 bushels per hour; new, best make.
One 20-Inch Portable Mill, iron frame, capacity 12 to 16 bushels per hour; new, best make.
One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.
One 18-Inch Vertical Portable Mill, French Buhr Stone, hung on horizontal shaft; capacity 25 to 40 bushels per hour; new, best make.
One 14-Inch Vertical Feed Mill; best make, new, a bargain.
Two No. 4 Scientific Grinding Mills, capacity 40 to 50 bushels per hour; new.
A Lot of Elevator Buckets, brand new, best make, any size desired, very cheap.
One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5f

AMERICAN milling interests this year depend more upon the whims and freaks of the Chicago speculators than upon the relations of supply and demand. The Chicago gamblers, who grow no wheat, run no mills, export no grain or flour, and do nothing whatever that is legitimate, have assumed control of prices and prevented the export movement of wheat and flour which would have done much to make milling more profitable than it now is. The gamblers do not concern themselves about the loss of foreign markets to American millers and grain-growers. All they care to do is to manipulate the market for their own benefit, and for some months they have been doing just that with a large degree of success.

AMAZING nonsense and slush ungraded continue to flow out from Minneapolis. An oracle in that town makes the strikingly original announcement that wheat flour is good only when it is cheap, and that it is bad only when it is dear! If those statements are true, it follows that Minneapolis low-grade is better than high-grade, because it is cheaper, and high-grade is poorer than low-grade because it is dearer! It is hardly necessary to employ the "reductio ad absurdum" upon any statement from that Minneapolis organ, because its most nearly sane and lucid utterances are always perfectly absurd, but the attention of its friends should be called to the fact that they are being made ridiculous by the fool-antics of their spokesman. Minneapolis has attempted to gobble up the entire business of exporting flour to Great Britain, and it has even tried to subordinate all the business interests of the United States to the interests of Minneapolis, but when it says that "we" must have the English market or die, Minneapolis must not forget that the millers who make about 60,000,000 barrels of flour are not going to slaughter the value of all their product simply to enrich a few millers who make 5,000,000 or 6,000,000 barrels. When exporting ceases to pay the costs of production, transportation and handling, with a reasonable margin for administration and investment, it is time to abandon exporting. All the illimitable oceans of cranky egotistic slush poured out by Minneapolis exporters and their organ can not make the world outside of that town believe that the chief function of the human race is to support Minneapolis. The rest of the world should have a show.

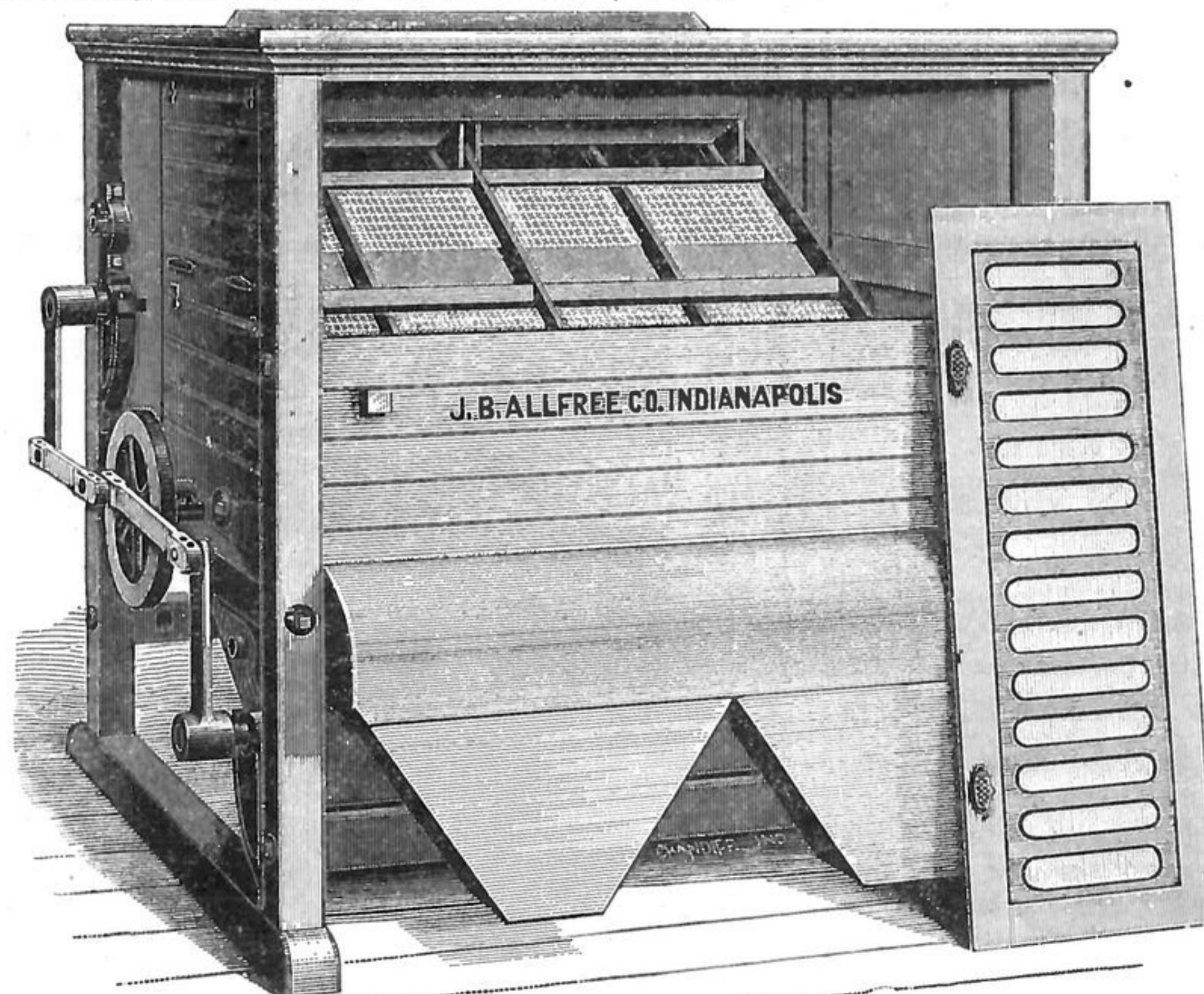
THE ALLFREE SIEVE SCALPER.

Herewith is an engraving representing a first-class sieve-scalper made by the J. B. Allfree Company, of Indianapolis, Ind. Sieve-scalpers have attracted considerable attention recently. They are becoming more and more popular with millers who have concluded, after years of experience with the common scalping-reels, that the former are preferable in many respects. So many customers have inquired for sieve-scalpers that this company determined to manufacture one, and the venture has succeeded beyond their most sanguine expectations. They are now prepared to offer to the milling public a scalping-machine that will do its duty in every sense of the word. It has an inclined screen containing in the largest machine about 15 square feet of wire cloth and has an immense capacity. It will make a perfect separation. The machine is constructed with an inclined screen of about 30 degrees, vibrated in a vertical position, which is effected by rockers upon which the sieve rests, giving to the sieve a smooth, noiseless and wonderfully effective movement, which is quite novel. These rocking-cams are connected to a crank on the main driving-shaft, which gives two motions to the sieve to each revolution. The material enters at the head of the sieve-frame, falling first upon an auxiliary distributing sieve of much coarser wire than the main sieve, thus largely increasing the capacity of the main sieve. The number of these auxiliary sieves will depend a great deal on the amount and character of the work to be done. They are short and may be withdrawn or introduced as the case may require. The material falling upon the main sieve is gently and rapidly carried over its surface, the agitation being such as to allow the flour and middlings readily to fall out of the sieve, producing no scouring whatever and making a most perfect separation. Aside from the marked improvement in color, the most extraordinary feature of the machine is its capacity and power required, the

latter being merely nominal, a belt 1 inch wide being sufficient to operate it. The machine can always be depended on materially to improve the color, raise the percentage of patent and lower the percentage of low-grade. The makers are unable to lay down just what the machine will do under the varying conditions, as in a 6-break mill the capacity would be much greater than in a 3-break mill of same capacity, nearly double, but it is very safe to say that their No. 3 machine will take care of any break in a 500-barrel mill, making 6 reductions, or 3 or 4 breaks in a 100-barrel mill. This will serve to give a general idea of the value of the machine to every miller in the country. The machine is always entirely under control, keeping itself clean, and is thoroughly provided with absolutely perfect adjustments that will obviate all trouble to the miller when putting it in the mill. Hexagon or round scalpers are furnished when preferred, at low prices.

THE NECESSITY OF PERFECT ROLLS.

The more the writer reflects, observes and experiments, the more he is convinced that if much more attention were given to the rolls in a flour-mill, both by makers and users, much better would be general results in all systems of flour-milling. While it may not prove necessary to go into full details covering all systems, it does seem necessary to cover such points in a manner that will enable millers to estimate the requirements of their peculiar situation. We will com-



THE J. B. ALLFREE SIEVE SCALPER.

mence, for instance, with the first or main break of a short-system mill, allowing the rolls to have 18 corrugations to the inch. Common observation teaches that it seems to be much easier to make such a pair of rolls imperfect than to make them perfect and true on the face. Every body knows that, to be exactly right and in condition to do perfect work, the faces of the rolls should be in an exact circle. That is, that each point in the corrugation furthest from the center should touch the same circle. The face of the rolls should be exactly straight, so that the outermost point of each of the corrugations would touch the same circle its entire length. If care sufficient is taken to put the rolls in that condition, as near perfection in grinding as can be obtained by any mechanical process ought to be assured, because the grinding surfaces of the rolls can be made to touch each other at every point on the circumference of each.

Now, it is possible to make the roll surfaces as perfect as indicated, the work of grinding and corrugating being done from centers, and yet the centers may be eccentric to the circumference of one or both the journals. In such an event all will readily understand that the grinding condition of the rolls will be just as bad as though the faces of the rolls were out of true. If both centers were equally out, then the rolls, when set together, would touch hard at one point and be open at another. When at work, the full points of the

rolls would have to be the guides for accomplishing supposed results, while the open points would do but little, if any, work. In the main-break rolls some work would be done at every point, because no opening could be large enough to pass whole grains of wheat through. The wheat would be broken, but the work would be irregular, uneven and unfit to have justice done it by the next operation. Only one of the centers might prove eccentric to the journal axis. The effect then would be that while one end of the rolls might touch when set together at every point of the circumference, the other would not; there would be close and open places, and hence uneven grinding as before, the effect being substantially the same as though both centers were out, or as if the rolls were in any other way out of true.

Attention is called to these facts and points of difference, to give the miller a knowledge of the causes which lead to untruthfulness and bad working conditions of rolls in general, which may enable him to discover the causes of his own trouble, when he has any of that kind; and the assertion is ventured without fear of successful contradiction, that evils of the kind complained of will be found in four out of five of all the mills in the country. But whether the miller is able to discover the cause of his rolls being out of true or not, he is or ought to be able to discover the fact, first by the uneven condition of the grinding, afterwards to be proven by an examination. There are various methods of examining rolls, to discover whether or not they are true. One good plan is to place a strong light inside the frame, immediately under the point where the rolls come together, close them and slowly turn the rolls by hand. If there are any open places, the flashes of light reveal them instantly. That plan is very successful with smooth rolls. With corrugated rolls the ear alone is sufficient guide to prove a lack of truth. Set them together and turn slowly by hand; if one point touches and another does not, it can be quickly discovered. The mere fact of the rolls being out of true is all the miller needs to know. Elaborate experimenting to

tell how much or how little they may be out is not necessary. The only proper thing to be done is to have them sent to a shop where such work is done and have them made true.

The shopman should be instructed to ascertain if the centers are true to the journals of the rolls, and if not, to make them so absolutely, and then proceed to make the faces of the rolls true accordingly. It is not likely that all shop managers require any such instructions, as they know how to do it and are willing to do the job as it ought to be done. But there are some shop managers that certainly do need such instructions, and these have to be watched to make sure the work will be done right, if indeed it can be done right in all such cases. The writer's experience goes a long way in the direction of convincing him that there are some shops or managers making pretentious claims that are totally inadequate to the task of making a good job in redressing rolls. Of that fact all mill-men ought, if possible, to satisfy themselves before sending the rolls away, and make sure to send them where reliable work will be done. Having instructed how to discover the bad condition of rolls, and how to proceed in such cases, we will get back to the effects of bad grinding conditions, in order more fully to impress the minds of the millers with the importance of having and keeping every pair of rolls in perfect grinding condition. We have shown how that, when the main-break rolls are untrue, very uneven grinding is done on them, which makes uneven work for the next pair, or bran rolls, to do. For the sake of argument in this case, we will suppose the bran rolls to be perfectly true and in that condition to receive the unevenly sized feed from the tail of the bran scalper, part of which has been ground too high as stated, on account of the break rolls being untrue. The coarser particles are too large for the bran rolls to handle and clean the bran good, and hold them away from the finer particles; and, as a consequence, none of the bran is well finished.

Some one might suggest another pair of bran rolls, or a number of them, as the case might be, to finish the bran with, but the legitimate query would be, why go to the expense of more simply to make good the defective work of preceding machines when they should be made perfect instead? Besides, there is no assurance that the work will be completed with the addition of more rolls, because they too might prove imperfect. The proper course to pursue is to make the machines in hand do complete work, and then if there is still an unfinished product, add machines to finish it. But then again, suppose the bran rolls, are like the main-break rolls, untrue, and they are likely to be, the finishing up is still worse and renders it all the more important that both sets of rolls may be made true in every way. If these bad results are made manifest in bad corrugated roll work, how much more annoying it will prove in smooth roll work. If the smooth rolls are out of true, there can be no hope of a close finish. The defective work of the first pair of smooth rolls may run through to the tail end of the mill and land in an unfinished state in the feed pile at last.—*R. James Abernethy, in The Mechanical News.*

AN UNDECIDED ENGLISH OPINION.

Discussion of the crease-dirt question has caused many curious debates among milling authorities in the United States, but it is probable that no case of mental obfuscation on that subject in this country can equal the following case in England. The writer of a series of "Notes for the Milling Examination," in the London "Miller's Gazette," who signs himself "W. R. V.," appears to hold comically confused views on the subject of crease-dirt. In one state of mind he evidently believes that there is no such thing as crease-dirt. While in that state of mind he writes as follows:

"Concerning the crease-dirt theory, it appears to have been propounded and accepted upon very slender premises. Only a moderate amount of research is needed to lead one to doubt whether, in spite of all that experts have advanced, there is any such substance as a separate deposit of dirt in the crease, that is to say, a definite accumulation held there and capable of being removed only after the grains have been split lengthways. That a belief in the existence

of this deposit formed part of the current doctrine enunciated by leading milling experts is easily proved; it was so from the introduction of the modern system into this country, and, so far as I am aware, has not been generally disowned, so that the reasonable deduction is that the crease-dirt theory is still part of the milling faith with many members of our trade. I can not better illustrate the almost universal acceptance of that theory than by quoting a few extracts culled from the speeches or articles of some of the best known specialists. My object is to show that the opinion to which I have alluded was not merely the opinion of any individual alone, but was part and parcel of the accepted belief of many leading men who were interested in the erection of new system mills. A few quotations from the milling papers follow:

'The grains . . . open out at the crease, thus letting the dirt which lodges there . . . fall away.'

'The first break splits the wheat along the crease in order that the dirt from the crease may be removed.'

'By thus liberating these impurities before the real work of reduction commences, one of the principal sources of inferior break flour is avoided.'

'By splitting the wheat through the grain any dirt therein is liberated.'

"I have selected the foregoing as representative of a far greater number of opinions which might be quoted. Notwithstanding the general belief in this crease dirt, I venture to state that its existence can not be proved. The fact that the outsifted dust from the first-break rollers is usually very dark certainly is not conclusive evidence thereof. Microscopic examination shows that by far the greater part of this particular dust is composed of starch granules, the remainder consisting of bits of bran sheared off by the rollers. Now, it is abundantly clear that starch granules are not deposited in the crease. Whence, then, do they originate? The number of badly broken grains sufficiently indicates their source. They come from the floury parts of the grain, which, having been exposed to the action of the break machinery and connections, have naturally been somewhat broken up thereby. Some flour is therefore loosened, and it is made dirty by association with the surfaces of the wheat grains. It must not be supposed that so-called cleaned wheat is absolutely free from dirt; the contrary may be readily demonstrated. Take a clean basin and in it place one pound of the ordinary cleaned mixture of wheat. Add to this a handful of good clear flour, reserving a portion of the same for comparison. Now stir the wheat and flour together for one minute, and then sift the flour through a clean silk sieve. Test this flour for color against the same sort as it originally was; note the dull, leaden hue of the flour which has been in the wheat; this is due to dirt, truly, but it is surface dirt, spread in infinitely fine atoms over the entire grain. This experiment may be equally well applied to the scalped first-break half corns; the presence of dirt is proved, thus disposing of the notion that the initial break has any power to remove all the dirt. A glass of water into which wheat may be placed will, by going turbid, also prove that dirt is ever present on the wheat grains. This surface dirt it is which causes the dull color of all break flour and fine middlings; the finer the flour, so much more readily does it become contaminated by impure material."

The writer appears to be satisfied that he has established his proposition, that there is really no crease-dirt, but at this point his state of mind changes, and he goes on to say in the same paragraph:

"While the microscope disproves the existence of a deposit of dirt, it does show the presence of a peculiar fibrous material in many, though not all, grains. Red wheats exhibit this characteristic more frequently than the white. That it is a loose deposit is amply proved by observing the many bran-flakes which bear this fiber, and as it sticks during the whole break process it can not be called loose. It often has the appearance of a thick, dark line traced along each inner lobe; it can not be seen usually till the grains are split open. I account for its presence in this way. We know that at a certain period in the life of every grain it was considerably larger in size than when ripened and fit for grinding. When soft and milky, the berry is at its largest. Of course every part of the grain is covered with layers of material, and it

follows that when subsequently the grain dries and contracts to a lessened bulk, a process of compression goes on by which the integument between the lobes is forced tightly into the crease and there decays eventually, becoming this same dark fiber as we find it."

After reading this luminous exposition, which in effect both denies and confirms the existence of crease-dirt, the English student who is posting himself for a milling examination will find himself in a quandary. "W. R. V." acknowledges the existence of a fiber in the crease, and as some of that fiber finds its way into the flour, it would seem that even the opponents of the "crease-dirt theory" confirm that theory by indisputable hard facts. An advocate who talks on both sides will hardly be accepted as a reliable guide. Meanwhile, the contest between the practical miller and the tangible crease-dirt is still on.

AMERICAN FLOUR IN GREAT BRITAIN.

Summing up the situation of foreign flour in Great Britain, the London "Millers' Gazette" of March 18 says: "The present cereal season is now half over, and it is satisfactory to note that, as it progresses, the early intimations and expectations of a great falling off in the foreign flour competition have been fulfilled, the deficiency in the American crop and the consequent abnormally high prices ruling in that country being the principal cause. Thus it is that we hear not infrequently the remark made by millers that "this is the best season we have had for years." Moreover, the new American crop flour is generally so deficient in strength, and to some extent in color, that the British miller, with his almost unlimited supply of cheap and good Russian wheats, can this season beat his American rival in both quality and price. During January and February this year our imports of foreign flour have, compared with last year, been about 33 per cent. less, and compared with 1887 about 31 per cent. less, the figures reduced to sacks of 280 pounds being 815,000 sacks this year, against 1,262,000 sacks last year and 1,187,000 sacks in 1887. For the six months ended February 28, which is just half the season, the falling off is only 21 per cent. compared with last year and about 10 per cent. compared with 1887. The figures for these six months in the past three years, showing the source of supply, are as follows, in sacks of 280 pounds:

	1888-89.	1887-88.	1886-87.
U. S.—Atlantic.....	1,714,000	3,028,000	2,351,000
" Pacific.....	209,000	77,000	261,000
Austria-Hungary.....	458,000	336,000	325,000
Germany.....	358,000	189,000	159,000
Sundries	295,000	278,000	236,000
Total.....	3,034,000	3,858,000	3,332,000

"Here we find that, although the American Atlantic ports have sent us 43 per cent. less than last year, Germany, Austria-Hungary and the Pacific Coast have so increased their supply that the final difference is reduced to 21 per cent. This is an important reduction, but it is small compared to the probable falling off in our flour imports in the second half of the season. Last year from March 1 to August 31 we imported 3,282,000 sacks of 280 pounds, and in 1887 as much as 3,438,000 sacks. It is pretty safe to expect that this year the figures will show a decline of 33 per cent., which would make the total for the season about 5,250,000 sacks, against 7,142,000 in 1887-88. In other words our average weekly imports this season will probably be about 100,000 sacks, against 137,000 sacks last season. Millers, therefore, will have the benefit of manufacturing about 1,900,000 sacks more flour than they did last season, the manufacturing profits on which should represent a handsome sum. It now only remains for our millers to maintain the ground they are thus gaining by religiously keeping up the quality of their products and by reducing to the lowest possible point the cost of production. With a good crop this year it may be taken for granted that American millers will make every effort to regain that which they have this season lost by the force of circumstances."

Our cotemporary does not point out why it is that, if the English millers really can "beat his American rival in both quality and price," a single sack of the alleged dearer

and poorer American flour is imported into Great Britain. Surely it is singular that so large a quantity as 1,923,000 sacks of poorer and dearer flour should be imported into Great Britain, and it is quite as curious that much of it should be imported by English millers themselves, who are beating their American rivals both in price and quantity. The flour situation offers some surprising features to the observer, and surely this feature is quite as surprising as could be conceived. The table quoted shows that in the periods referred to the American contribution was 75 per cent. in 1886-87, against 81 per cent. in 1887-88 and 64 per cent. in 1888-89. Our cotemporary is right in its forecast of what will take place on the coming crop in case it proves an average or abundant one. The Americans will regain all they have lost on the short crop of 1888. The loss has not been disastrous, and it is not irretrievable.

ALLEGED MILLING POETRY.

THE OLD MILL-WHEEL.

How we used to sit and watch it—
But you don't remember, dear,
For, alack! we were but youngsters
In that old delightful year.

How the spray it turned to silver
In the early morning light,
And each paddle was a diadem
With jewels sparkling bright.

How the willows bended lowly
To the bank on either hand,
As we sat there wrapt in glory
Of the light of fairy-land:

Fairy-land because the elfin
Sprites we conjured in surprise,
Child-like, from the realms of fancy
Lighted up our paradise.

Do you recollect the sunset
And the glory of the west,
When the day-time turned to twilight
And the old wheel went to rest?

Do you recollect the swallows
Skimming homeward to their eaves?
Do you ever hear the whip-poor-will
Whose lone note ever grieves?

Do you see the dusty miller
As he closes up the door?
Do you ever see the light that comes
From out the days of yore?

Ah, you were a happy maiden
In the days of long ago,
And your babies and *my* babies,
They are glad to have it so.

H. S. Keller, in "Once a Week."

SHE REMEMBERS IT ALL.

Yes, dear Keller, we used to watch it,
And I do remember, dear,
Although we were but callow
In that old and musty year!

How the spray turned to malaria
As we roosted on the bank,
How we caught the "fever-n-ager"
Spoonning in the gorge so dank!

I know "each paddle was a diadem,"
Because you state it, Keller;
Of course we were "wrapt in glory,"
For then you were my best feller!

And I'm onto the "fairy-land" racket,
Plum onto it with every hoof,
Because I caught cold thro' my thin jacket
Wet with drippings from the roof!

Yes, the "willows bended lowly
To the bank on either hand,"
And when Dad cut a switch therefrom, Holy
Moses! Gracious goodness! Beulah Land!

Yes, I'm onto the red "sunset
And the glory in the west,"
When the flume was shut for evening
"And the old wheel went to rest."

Yes, I see the "dusty miller,"
And he was a perfect fright;
Not a bit of romance glory
Can I conjure from the sight.

No, I was n't happy, Keller,
In the days I spooned with you!
And I really am contented
With my babes and their Dad, McGue!

McGlueburgh, Pa.

Mrs. Susannah McGue.

CERTAIN wheat-growing countries in the southern hemisphere, which a year ago were advertised as vanquishing competitors with the United States, are having a rather hard time nowadays. Their wheat crops for 1889 are very short, and they are compelled to import wheat from the

United States. Australia reports "absolutely no wheat for export," and a San Francisco, California, report says: "Entire surplus steamship room engaged till June for wheat to Australia." Chili, upon which Great Britain was depending for supplies, is importing regularly from San Francisco. On the whole, the southern hemisphere wheat-growing industry seems to be a very unreliable, unsatisfactory one.

WHEAT AND CORN CROP FIGURES.

According to the figures of the statistician of the Agricultural Department, published in his report on the crops for March, the production of wheat in the world in 1888, stated in Winchester bushels of 60 pounds, was as follows:

Country.	Bushels.	Country.	Bushels.
North America.		Servia	4,540,000
United States.....	415,868,000	Spain	101,156,875
Canada.....	32,000,000	Sweden	4,256,250
South America.		Norway	312,125
Arg'ne Rep'c & Chili.	28,375,000	Switzerland.....	1,702,500
Europe.		Turkey	45,562,500
Austria.....	51,075,000	Asia.	
Hungary.....	131,746,879	India	266,882,112
Belgium	14,876,130	Asia Minor.....	38,306,250
Denmark.....	4,823,750	Persia	22,700,000
France.....	273,620,125	Syria	14,187,500
Germany.....	105,000,000	Southeast Asia.....	8,512,500
Gr't Brit'n & Ireland	76,760,671	Africa.	
Greece	4,823,750	Cape of Good Hope..	3,819,686
Italy.....	106,079,370	Algeria	19,862,500
Netherlands.....	4,256,250	Egypt	14,187,500
Portugal	7,003,750	Australasia.....	47,588,161
Roumania	51,075,000	Total.....	2,152,669,134
Russia (excl'e Poland)	254,619,000		

In reference to the wheat crop of the United States, the following table is given of the amount of wheat, in bushels, in farmers' hands on the 1st of March in each of nine years, and the percentage of the entire crop:

Year.	Bushels.	Per ct.	Year.	Bushels.	Per ct.
1889	112,000,000	26.9	1884	119,000,000	28.3
1888	132,000,000	28.9	1883	143,000,000	28.4
1887	122,000,000	26.7	1882	98,000,000	25.6
1886	107,000,000	30.1	1881	145,000,000	28.1
1885	169,000,000	33.0			

The statistics compiled by the Department fail to equalize supply and distribution by 11,000,000 bushels, and the statistician disclaims any pretension to perfect accuracy in his estimates of the amount of wheat in the country on March first, but he maintains that these estimates have been so far confirmed by final returns throughout a series of years as to show their approximate correctness. The amount retained for consumption is almost identical with that of last year, but the distribution prior to March first has fallen from 256,166,200 bushels in 1888 to 213,837,320 bushels in 1889.

According to the figures for the corn crop, the quantity of corn consumed has been slightly greater than ever before recorded, about 1,201,000,000 bushels in five months after ripening, or from the first of October. Still the quantity on hand is quite as large as ever before, though only a few million bushels more than was reported three years ago. The increase in absolute quantity is a necessity of the growth of the country in population and production. The supply and consumption in proportion to population are really less than in some previous years. The comparison of stock on hand and amount consumed with former records is as follows:

On hand March 1.	Consumed or distributed, bushels.
1883.....	587,000,000
1884.....	512,000,000
1885.....	675,000,000
1886.....	773,000,000
1887.....	603,000,000
1888.....	508,000,000
1889.....	787,000,000

The percentage of the entire crop on hand March 1 is slightly below that of 1886, but greater than any other year. Concerning the distribution of the corn crop, the report says: "Only 2 or 3 per cent. has ever been exported, except in a few years of comparative failure of competing feeding material in Western Europe, and, including such excessive demand, less than 4 per cent. since 1870. A much larger quantity goes east to the seaboard States north of Maryland; another quota is received by large western cities for domestic consumption; and a further element of distribution is a local demand of feeders that carries a small percentage across county lines. That home distribution which does not require railroad carriage except within the county is not considered, being counted with the farm

consumption. Usually about one-sixth of the crop goes into general distribution, by transportation either with a long or short haul to the next county, to the East or to Europe. Last year it was scarcely one-eighth, as the home demand is the first supplied and as exports are reduced by high prices. The estimated proportion distributed or held for distribution is now 18.7 per cent., leaving about 1,616,000,000 bushels for home consumption." Eighty per cent. of the total crop is the average proportion that is merchantable, the present crop comparing with those of recent years in this respect as follows:

Years.	Merchantable, bu.	Per cent.
1883.....	935,926,541	60
1884.....	1,593,332,101	89
1885.....	1,583,012,860	78
1886.....	1,438,446,830	86
1887.....	1,222,166,360	84
1888.....	1,637,405,930	82.4

The value of the whole crop, if calculated on the basis of the present prices, merchantable and unmerchantable separately estimated, would be as follows:

Merchantable, at 33.9 cents per bushel.....	\$555,484,968
Unmerchantable, at 22.8 cents per bushel.....	79,726,118

Total value, basis of March prices.....	\$635,211,086
Total value, basis of December prices.....	677,561,580

INJUSTICE is done to the wheat-growing capacity of the United States by the reports that the average yield for the country is only 11, or 12, or 13 bushels to the acre. Right here in western New York are many farms that are yielding, and have for years yielded, from 35 to 57 bushels to the acre. What justice is there in a representation that makes it appear that wheat-land in New York yields only 12 bushels to the acre? Of course the experts and the statisticians must have their say and their hearing, even though they figure the average yield down to 1 bushel to the acre, but it is all wrong to publish averages that so far mislead and misinform the public.

THE ALLIS HOUSE CONTINUES.

Under date of April 5 Messrs. W. W. Allis and Charles Allis, surviving members of the firm Edw. P. Allis & Co., Milwaukee, Wis., sent out the following communication:

GENTLEMEN: We are pained to announce the death of Mr. Edward P. Allis, which occurred on the first instant. The deceased has made ample provision in his will for the continuance of his business by his executors, and the manufacture of every thing in the line of the business will continue without interruption. The undersigned have been appointed special administrators, to take immediate charge, and all bills and demands are payable to us, and we shall see to the proper execution of all contracts.

Respectfully,

W. W. ALLIS.
CHARLES ALLIS.

SPECIAL NOTICES.

LIBERAL OFFER.

With a view of increasing our subscription list, we will send a copy of R. J. Abernathy's new book, "The True Short System" (Price \$2.00) and "The Milling World" for one year at the very low price of Two Dollars. Renewal will be treated same way. This offer will only continue for a limited time. Now is your chance. Send in your subscriptions at once.

Address,

THE MILLING WORLD, BUFFALO, N. Y.

BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

CASE MANUFACTURING CO.,

Columbus, Ohio.

Office and Factory, 5th Street, north of Naughton.

TOLEDO MILL PICKS AND STONE TOOL MFG. CO.

Manufacturer

and Dresser of

MILL PICKS.

Made of the best double-refined English cast steel. All work guaranteed. For terms and warranty, address, GEO. W. HEARTLEY, No. 297 St. Clair Street, Toledo, Ohio. Send for Circular.

N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

ALSO MANUFACTURERS OF
Shafting, Pulleys, Hangers, Coupling, Machine and
Jobbing, Etc., Etc.



To UTILIZE RUNNING STREAMS.—A new method of utilizing the power of running streams has been devised by M. Tayn, a Russian engineer. His apparatus consists of an endless cable carrying a series of canvas cones, which open and shut like an umbrella. The cable passes over a double drum on board a pontoon, and at the other end over a pulley suspended from a buoy. On the lower part of the rope the cones are opened and forced forward by the current of water, thus setting in motion a shaft or drum.

GENERAL NOTES.

THE world's annual production of salt is approximately 7,200,000 tons. Of this the United Kingdom produces 2,200,000 tons, North America 1,000,000 tons, the continent of Europe 3,000,000 tons and Asia and Africa 1,000,000 tons. The consumption of salt varies from 50 pounds per capita in the United States to 8½ pounds in Switzerland. In England 40 pounds per head is the average. In France it is 30 and in Italy 20 pounds per head.

POINTS IN MILLING.

MILLERS who have made a study of the quality of the grain they grind assert that grain grown in an abundant crop is far better than that grown in a thin crop. The conditions that aid in producing an extra yield to the acre generally produce also an extra quality in the grain. In a good season the yield of a farm may advance from 20 to 25 bushels an acre, or even to 30 bushels, and, according to the theory referred to, the 25 and 30 bushel yield will be better grain by a considerable percentage than the 20-bushel yield. The crop of 1888 is quoted as an instance. In those areas where the climatic conditions alone were responsible for the short crop, the grain is from 3 to 8 pounds lighter per bushel than in average years, and, as the amount of coating and fuzz and crease-dirt is constant, the loss must be in the floury portion of the grain.

GOVERNMENT crop reports on grain may be very well in some respects, but certainly, as now published in the United States, they mislead the public to a remarkable extent. For instance, the average weight of wheat of the 1888 crop is set down at 55.6 pounds to the measured bushel. Doubtless in some areas that figure may answer very well and may be nearly accurate, but there is good reason to believe that it grossly misrepresents to the outside world the real situation in the United States. I have specimens of wheat grown in New York, Pennsylvania, Ohio, Indiana and Illinois that averaged from 30 to 55 bushels to the acre, and that weighed from 60.5 to 63.8 pounds per measured bushel. Other specimens from Oregon, Washington, Montana, Idaho and California, ranging in yield from 20 to 60 bushels to the acre, averaged from 60 to 63.5 pounds to the measured bushel. Specimens from Minnesota and Dakota, outside of the area nipped by the August frosts in 1888, yielded from 18 to 30 bushels to the acre, weighing from 60.3 to 63 pounds to the

measured bushel. Specimens from the frost-nipped areas in Dakota and Minnesota ranged from 8 to 15 bushels to the acre, and the weight ran from 58 down to 50 and even less pounds to the measured bushel. Manifestly, the government reports need to be so arranged that the winter-wheat area should not appear confused with the spring-wheat area in the reports of measured and weighed wheats. Nor should the frost-nipped areas, the chinch-bug areas, the drouth areas and the flood areas be mixed up in the totals with the average or the abundant areas in either the spring-wheat or the winter-wheat section. As now arranged, the reports simply serve to confuse the public, because, coming from the government, they naturally carry weight and influence.

EXPERIMENT has proved that small wheat is proportionately richer in gluten than large wheat. In grading wheat the smaller grain will give the larger amount of gluten proportionately when ground. Of course this will hold good only in case the small grains are perfectly formed and filled. Grains that are small merely because they are shrunken by unfavorable weather or other conditions do not come into this calculation.

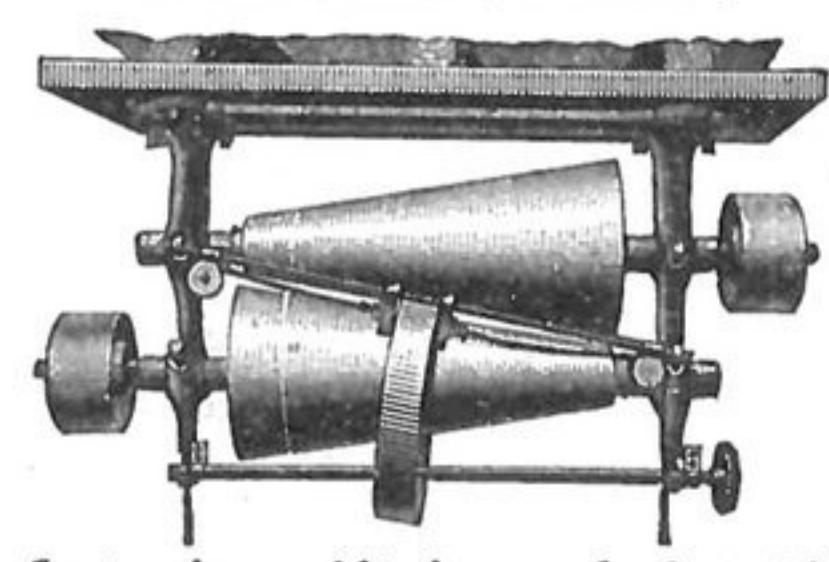
I FIND many mills in which the equipment is defective, unsymmetrical and not satisfactorily efficient. The outfit is not balanced. It is too strong at one point and too weak at another. In one mill the cleaning-machine makers are too numerously represented. There are cleaning machines enough for a 500-barrel mill crowded into 250-barrel mill. In a second mill the roll-makers have carried the day, leaving the grain-cleaning and purifying specialists out in the cold. There will be roll capacity for a third more stock than the rest of the machinery can handle properly. In a third mill the agony comes in with a superfluous number of purifiers or some other machines. In each case of unsymmetrical equipment the hobby of the owner or of the superintendent, or the over-persuasive power of the mill-furnishing agent is seen. Each specialist is bound to sell every miller his specialty, and the result is the state of things referred to. The proper equipment, just what machines are needed to do the work perfectly, not a single machine more or less, is what every plant should have.

UNUSED machines mean unprofitable investment, money not earning interest, sacrifice of room and deterioration of the unnecessary machines themselves. Buy all the really needed machinery for your requirements, and no more.

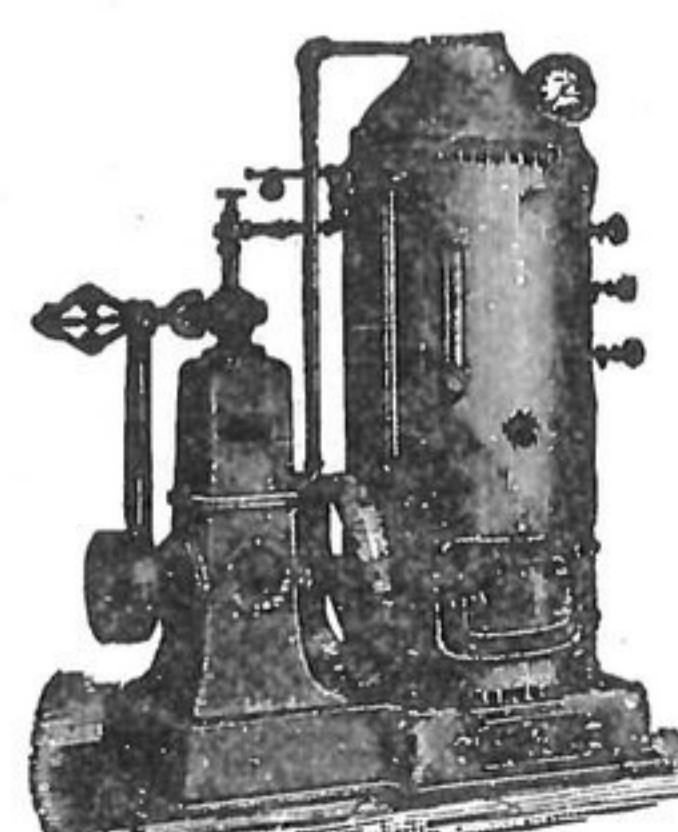
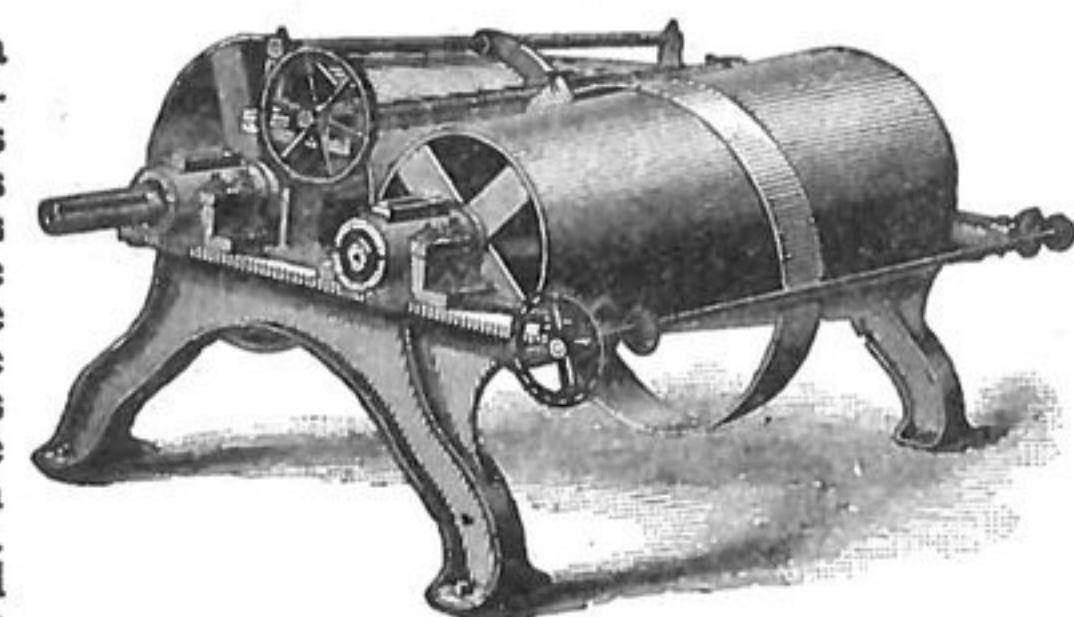
ECONOMY is one of the chief necessities in milling to-day. The miller must practice it at every point from the grain-receiving door to the flour and feed shipping door. He must have his attention on the grain he grinds, on the machines he uses, on the fuel he burns and on the men he employs all the time. With uniformly good wheat and fairly remunerative markets the making of money has not been holiday work for the miller, and now, with some bad wheat and with markets that are overstocked and profits that are small at the best, the making of money means decidedly hard work. Administrative capacity in millers never before counted for so much with millers as at present. The miller of to-day has to be, not only a capital flour-maker, but also a capital business manager, in order to make his ledger show any thing like a living profit.

THE EVANS FRICTION CONE & FRICTIONAL GEARING

"PATENTED."



This cut represents a set of hanging cone pulleys. This pattern is intended for that class of machinery that stops and starts at the same speed, and at the same time be able to change the speed more or less while running. These cones are also fitted with a governor where a steady motion is required and the initial power is fluctuating. All sizes made from $\frac{1}{2}$ Horse Power to 50 Horse Power. SEND FOR ILLUSTRATED CATALOGUE.



DURABLE,
ECONOMICAL,
NOISELESS,
SELF-LUBRI-
CATING,
LOW-PRICED.

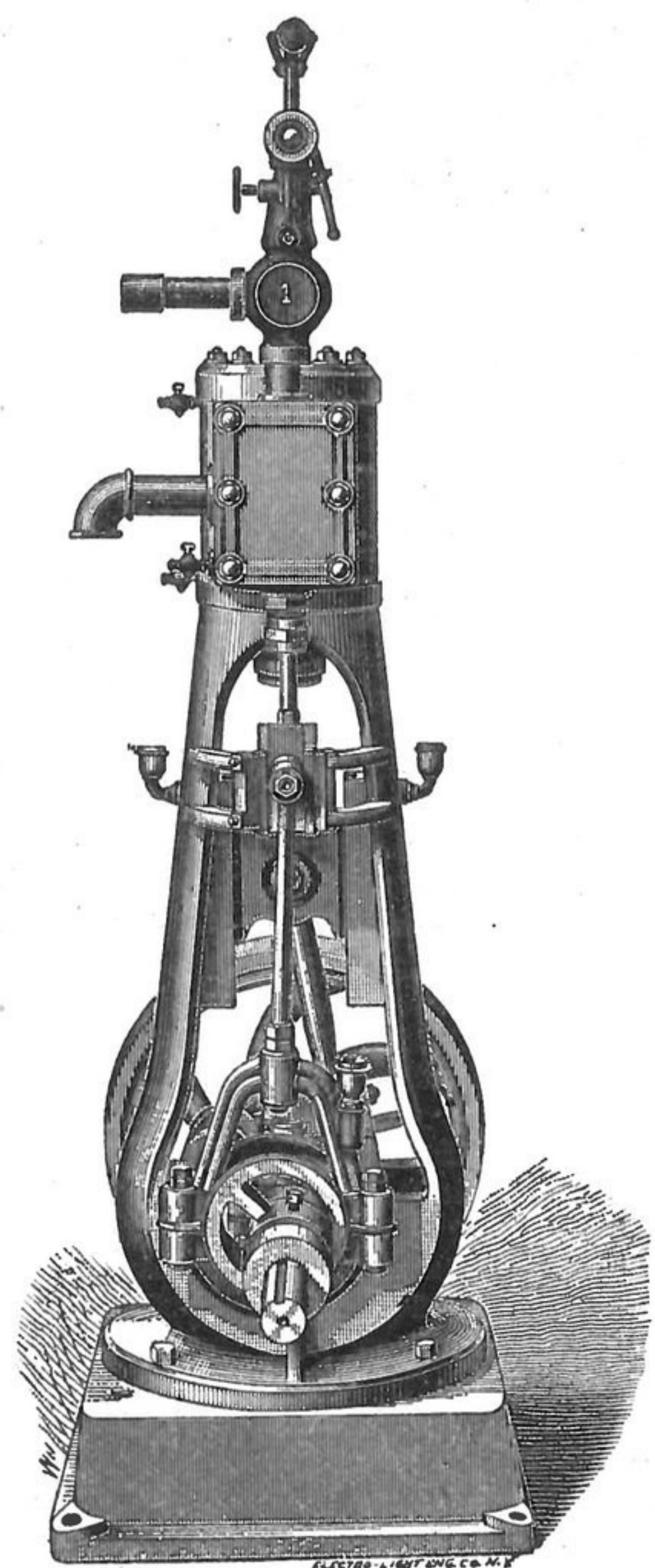
One and two Cylinder Engines, with vertical or horizontal boilers, are running 2 years without using a wrench on them.

1 to 15 H. P.
SEND FOR CIRCULAR
TO

CASTLE ENGINE WORKS
INDIANAPOLIS, IND.

EVANS FRICTION CONE CO., 85 Water St., BOSTON.

AUTOMATIC VERTICAL ENGINES



Especially adapted for Small Electric Light Plants. Perfect Regulation. Reversible Link Motion for Marine Use. Five to Fifteen Horse Power. Also manufacturers of

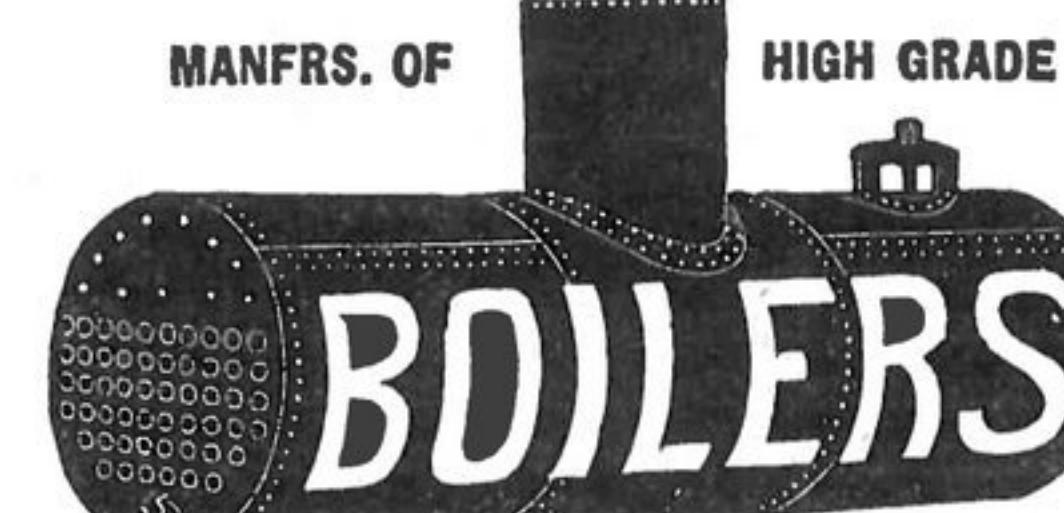
Lathes and Special Tools

Metal Patterns, Models and Machinery Built to Order. Send for Prices and Specifications.

Lloyd & Sterrett

COR. 16TH AND STATE STS.,
ERIE, - - PENN.

EAGLE IRON WORKS, DETROIT, MICH.



HORIZONTAL, UPRIGHT
PORTABLE AND MARINE.

Oil Tanks & Smoke Stacks,

HEAVY SHEET IRON WORK.
CORRESPONDENCE SOLICITED.

PAYNE HIGH SPEED CORLISS ENGINE

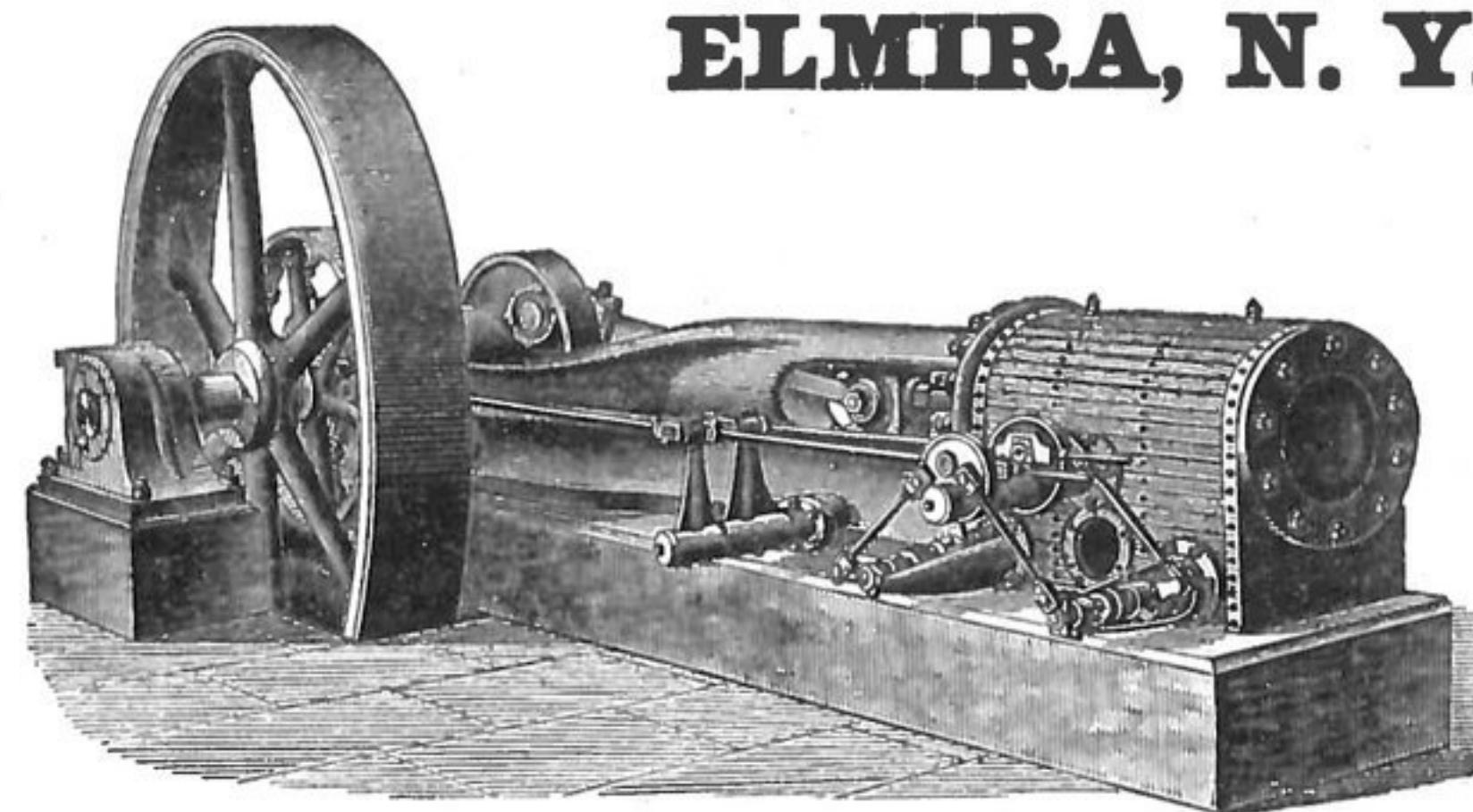
SHAFT GOVERNOR COMBINED WITH CORLISS WRIST-PLATE.

ECONOMY OF FUEL.

REGULATION EQUAL TO ANYTHING IN USE.

B. W. Payne & Sons,

ELMIRA, N. Y.



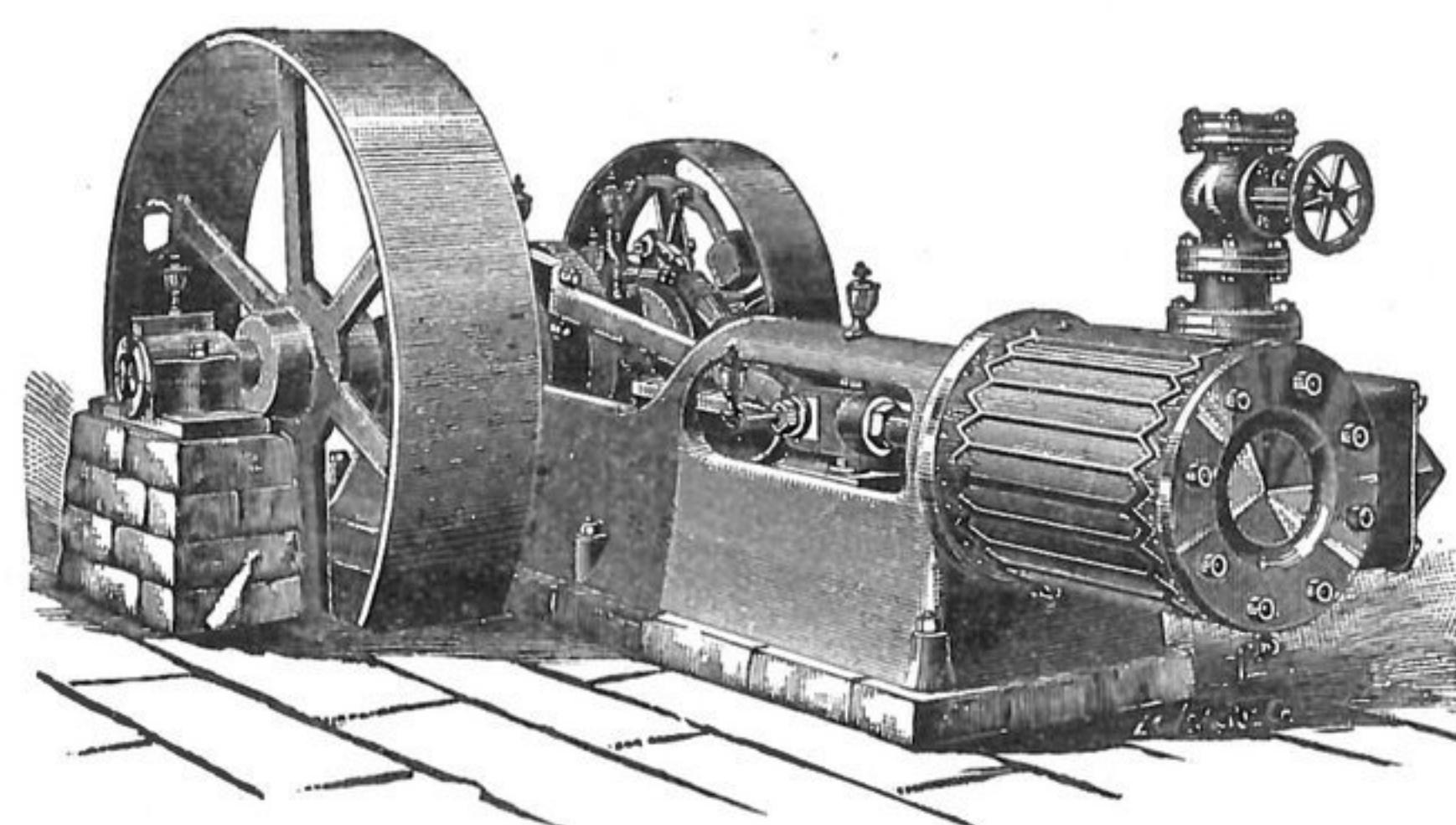
10 S. Canal Street,
CHICAGO, ILL.

45 Dey Street,
NEW YORK.

Hill, Clark & Co.
BOSTON, MASS.

AUTOMATIC ENGINES FROM 2 TO 200 HORSE POWER.

Economic Power Plants



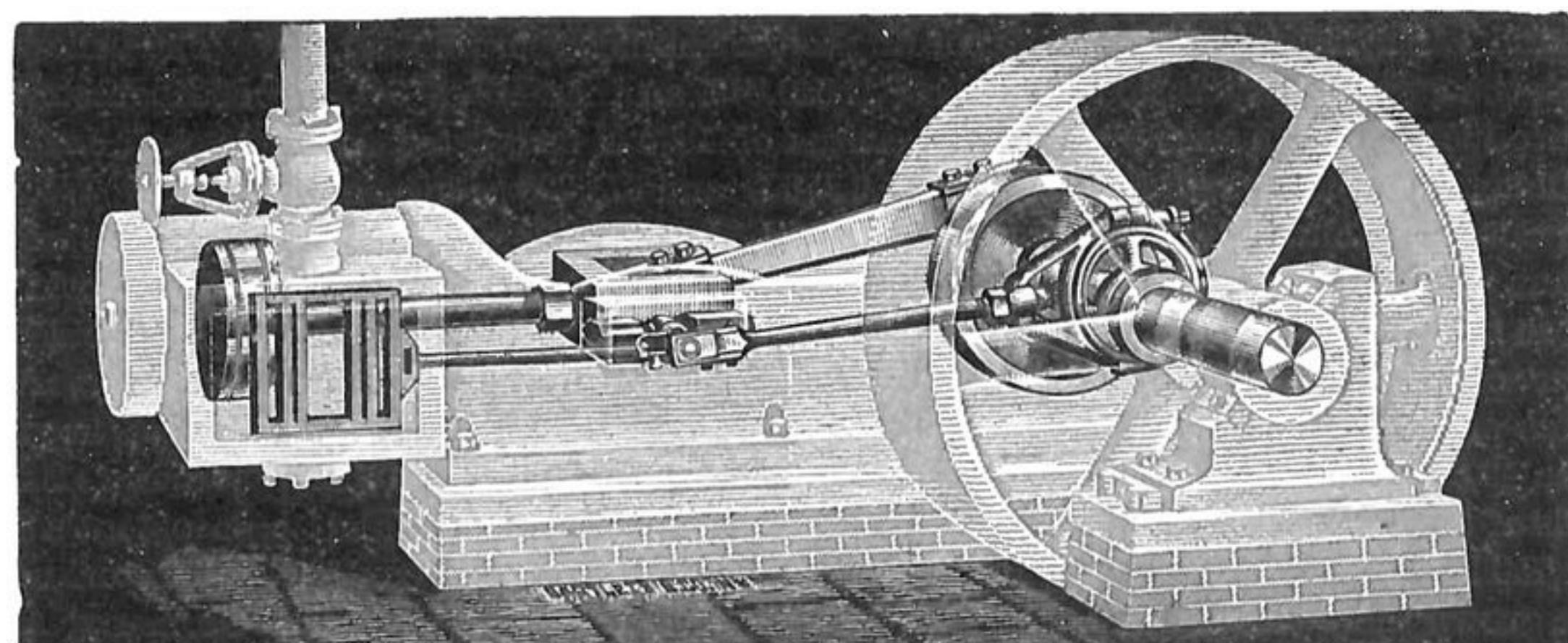
Especially Adapted to Electric Lighting and

WOOD-WORKING ESTABLISHMENTS

MANUFACTURED BY

VALLEY IRON WORKS, WILLIAMSPORT, PENN.

THE NEW PORTER HEAVY-DUTY ENGINE.



The Most Power for the Money, and All Things Considered the Most Economical.
For Illustrated Circular Address,

PORTER MANUFG. CO., LIMITED, SYRACUSE, N. Y.



J. Ewing's mill, Shirleysburg, Pa., burned.
 L. Turner, Oakland, La., will build a grist-mill.
 J. A. Shadle, miller, Mt. Pleasant, Pa., assigned.
 J. A. Wilson, miller, Wilsonville, Neb., assigned.
 Green & Shay, millers, Moweaqua, Ill., dissolved.
 Mt. Olivet, Ky., men will build a \$5,000 flour-mill.
 Jas. McCully, Oxford, Ala., will build a grist-mill.
 Bevan & Pindell's grist-mill, Lothian, Md., burned.
 Columbia, Tenn., men are building a \$15,000 elevator.
 Jos. Murray, Arlington, Tenn., has started a grist-mill.
 Rice Bros., Belton, S. C., add new grist-mill machinery.
 J. Morrow, Pecos, Tex., will start a flour and corn-mill.
 The C. T. Hayden Milling Co., Tempe, Arizona, assigned.
 J. B. Gould & Son's mill, Warren, Mass., damaged by fire.
 W. C. Hills, miller, Brazil, Ind., lost \$2,000 by fire; insured.
 Smith & Woodward, Abilene, Tex., will build a roller mill.
 Studebaker & Lentz's flour-mill, Delphi, burned; loss \$6,000.
 Parkinson, Flanagan & Co., Blanche, Tenn., will remodel to rolls.
 J. C. Tune, Shelbyville, Tenn., will rebuild his recently burned flour-mill.
 H. Spencer, Fort Spring, Ky., will remodel to rolls with 40-barrel capacity.
 A. H. MacDonald's grain warehouse, Cobourg, Ont., burned; loss \$3,000.
 C. W. Shultz, miller, Camargo, Pa., assigned; liabilities \$50,000; assets \$30,000.
 J. B. Lillie, Franklin, Tenn., wants flour and corn-meal machinery for a new mill.
 Columbia, Tenn., men are forming a \$20,000 company to build a 200-barrel flour-mill.
 The Farmers' Warehouse & Elevator Co., Murfreesboro, Tenn., are building a large elevator.
 H. D. Towner's mill and elevator, Hays City, Kans., burned; loss \$17,000; insurance only \$2,500.
 The Minneapolis & Northern Co.'s elevator, St. Cloud, Minn., burned with its contents; loss \$40,000.
 Adam G. Groff's roller mill on Mill Creek, near Lancaster, Pa., burned with all its contents; loss \$22,000; insurance \$16,500.
 M. Brilhart's flour-mill, near Hempstead, Md., was burned by an incendiary who had notified the owner of his intention. Loss \$7,000; insurance \$3,500.
 An Iowa man has invented a harvesting machine, which does not use twine for binding and which promises to furnish some relief from the oppression of the "trust" lately organized. The new machine cuts the grain in a long swath, like the old-fashioned cradle, and puts two swaths together. Another machine follows and loads the grain from the swaths loose, thus obviating the necessity of binding.
 A New England Sunday school teacher had for a lesson the story of the Prophet Elijah and the widow whose whole supply of food, when the man of God asked for refreshment, was "not a cake, but a handful of meal in a barrel and a little oil in a cruse." When the teacher asked her class how much food the widow had, the answer came from one little fellow: "She had just enough meal to make a cake and oil enough to start a fire."
 The J. B. Allfree Co., Indianapolis, Ind., have closed contracts with Bennett & Gates, Geneva, Ill., for a 200-barrel mill; with Stephen Horner, Germantown, Ohio, for a 40-barrel mill, short system; with J. J. Moore, Trafalgar, Ind., for a 26-barrel mill, short system. They report the sale of special corn-milling machinery, to replace machines of other makes, to J. H. Hodapp, Seymour, Ind., and the sale of J. B. Allfree sieve scalpers, for three breaks, to Knoblock, Ginz & Co., South Bend, Ind. They are also putting in scalpers for the Hoosier State Mill, Indianapolis, Ind.
 The area of the four new states embraces a total of 344,366 square miles, an area as great as that of the thirteen original states with Vermont and West Virginia added. According to the annual report of Gov. Church the present population of Dakota is 640,823, an increase of 634,000 since 1860. By the time the national census of 1890 is completed the two Dakotas probably will have between 650,000 and 675,000 people, of whom South Dakota will have over 400,000 and North Dakota 250,000. Montana will have about 215,000 or 220,000, and Washington about the same, so that the four new states will start off with a round million and a quarter of people. In the elements of progress and prosperity the Dakotas are at the head. In 1887 Dakota raised 62,553,499 bushels of wheat, 43,267,478 bushels of oats, 3,910,944 bushels of flax, 6,400,568 bushels of barley, 316,586 bushels of rye, 97,230 bushels of buckwheat and 24,511,756 bushels of corn, although it has been supposed that corn could not be grown there successfully. In 1886 the value of her live stock was nearly \$45,000,000.
 Says the Minneapolis, Minn., *Market Record* of March 12: The appropriation of \$100,000 to furnish seed grain to farmers in the northern part of the state, whose crops were ruined by frost last fall, was not enough to meet the demands of the farmers. Requests have been sent in to the state

auditor from many of the counties, in accordance with the provisions of the bill, and to supply the grain in quantities as large as wanted would require an extra appropriation of about \$40,000. Norman county wants 23,000 bu.; Polk 25,000; Marshall 20,000; Kittson 5,000; Clay 5,000; Becker 8,000; Otter Tail 16,000; Brown between 3,000 and 4,000 and Wabasha farmers whose crops were destroyed by hail have asked for 1,000. There are several counties yet to hear from. Bids for furnishing seed have been opened in Becker county by the commissioners, the lowest being \$1.10 a bushel. There is talk of adding \$25,000 to the \$100,000 previously appropriated. If the appropriation is not increased the requests for grain will have to be scaled down about one-quarter. Gov. Merriam called the senators' attention to the extra heavy demands on the state treasury and advised against the increased appropriation. It is expected that requests will yet come in for 6,000 or 8,000 bushels.

PERSONAL MENTION.

Mr. Edw. P. Allis, the head of the well-known machinery house Edw. P. Allis & Co., of Milwaukee, Wis., died at his home in that city April 1. Mr. Allis was an enterprising business man, and his history is perfectly familiar to the millers of the United States. He was prominent in politics and took a conspicuous part in the "Greenback Movement."

BOOKS AND PAMPHLETS.

The H. J. Deal Specialty Co., Bucyrus, O., have our thanks for a copy of the handsomely bound, fully illustrated, finely printed and deliciously scented "Illustrated Folder T." We prize it highly. The specialty on the last page is a taker. Send for a copy.

The April *Century* is a Centennial number, one-half of its pages being devoted to this subject. The frontispiece is a picture by I. R. Wiles, "Washington Taking the Oath as President." The first article is a historical sketch of "The Inauguration of Washington," written by Mr. Clarence W. Bowen. This is followed by two articles from the pen of Mrs. Burton Harrison: "Washington at Mount Vernon after the Revolution," and "Washington in New York in 1789." Mr. Charles Henry Hart, of Philadelphia, describes the "Original Portraits of Washington," and McMaster, the historian, writes concerning "A Century of Constitutional Interpretation." Mr. Bowen's article, Mrs. Harrison's two papers and the brief paper by Mr. Hart are all illustrated with authentic portraits of persons, places and objects pertaining to Washington and his times. Besides this profusion of Centennial material, the Magazine treats of a variety of subjects; Mrs. Foote's novel, "The Last Assembly Ball," is continued; George Kennan has a chapter on "The Russian Police"; Remington, the artist, writes and illustrates an article on the colored United States troops of the West; Mr. Harry S. Edwards, author of "Two Runaways," gives a characteristic story, "A Born Inventor"; the Lincoln History treats of "Retaliation, the Enrollment and the Draft"; a new writer, Miss Viola Roseboro', has an illustrated story, "A Jest of Fate." The special commissioner, Mr. George H. Bates, sent by the United States to Samoa in 1886, prints a brief but extremely timely paper on "Some Aspects of the Samoan Question." The poems of this number, including those in "Bric-a-brac," are by Thomas Wentworth Higginson, Christopher P. Cranch, Charles Henry Webb, Walter Learned, Louis Morgan Smith, Kemper Bocock, Edward A. Oldham and William Zachary Gladwin.

A PUBLIC BENEFACTOR.

"Who is H. H. Warner, of Rochester, N. Y., whose Safe Remedies, especially Warner's Safe Cure, have attained such success and celebrity at home and abroad?"

Hon. H. H. Warner, then, is a leading and honored resident of Rochester not only, but a prominent and influential citizen of the United States. On several occasions chosen by his party as a National delegate to nominate a President of the Republic, he has been a member of the Republican State Committee and of its Executive Committee. He is a member of the American Institution for the Advancement of Science; President of the Rochester Chamber of Commerce; a successful and upright business man. He has given away fortunes in charities. The celebrated and costly Warner Observatory of Rochester was conceived, endowed, and is maintained by him. His munificent prizes for the discovery of comets has been at once the wonder and delight of the scientific world.

The yellow fever scourge in the South, the Ohio floods, the fire disasters of Rochester and other cities awakened his profoundest sympathies and in each instance his check for \$500 to \$5,000 swelled the several relief funds. Where other wealthy men give tens and hundreds, he gives hundreds and thousands.

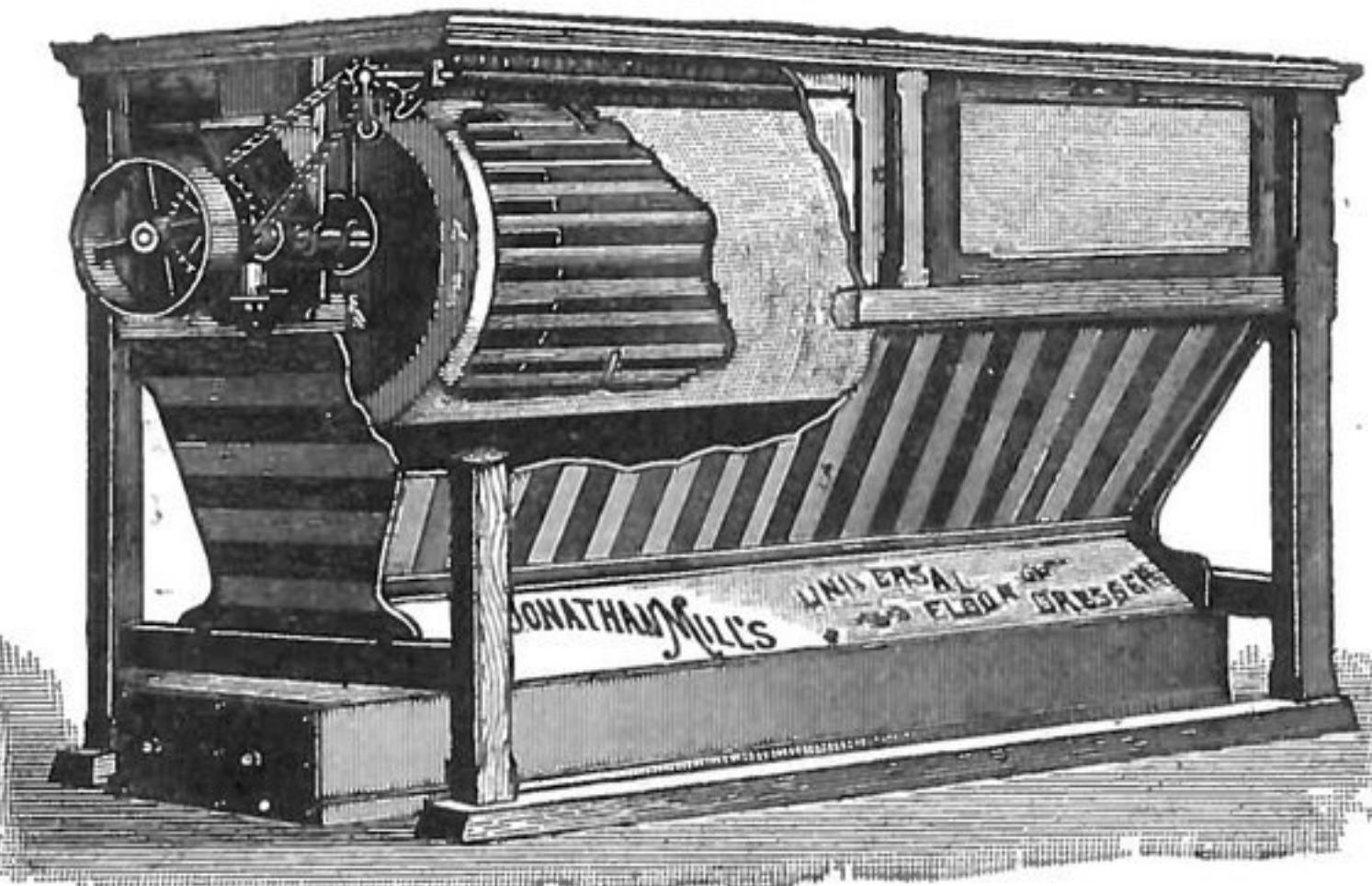
The world has need of more such men.

An incident led him into the manufacture of medicine. Seized some twelve years ago with what the ablest physicians termed fatal kidney disease, he was miraculously restored to health by what is now known as Warner's Safe Cure. At once he resolved to make known the merits of so potent a remedy, and the consequence is that to-day he has immense laboratories and warehouses in the United States, Canada, England, Germany, Austria, Australia and Burmah. Sales of his Safe Remedies are enormous, and their power over disease simply marvelous.

The merit of a production is in exact keeping with the character of its producer. An honest and reliable man himself, Mr. Warner makes honest and reliable medicines—a fact abundantly attested by their phenomenal efficacy and popularity.

MILLERS

our **Jonathan Mills UNIVERSAL FLOUR DRESSER.** The best machine on the market. Giving satisfaction everywhere in the best mills in this country. Thousands in use. We carry a full line of Crown Silk anchor Bolting Cloth and Grit Gauzes.



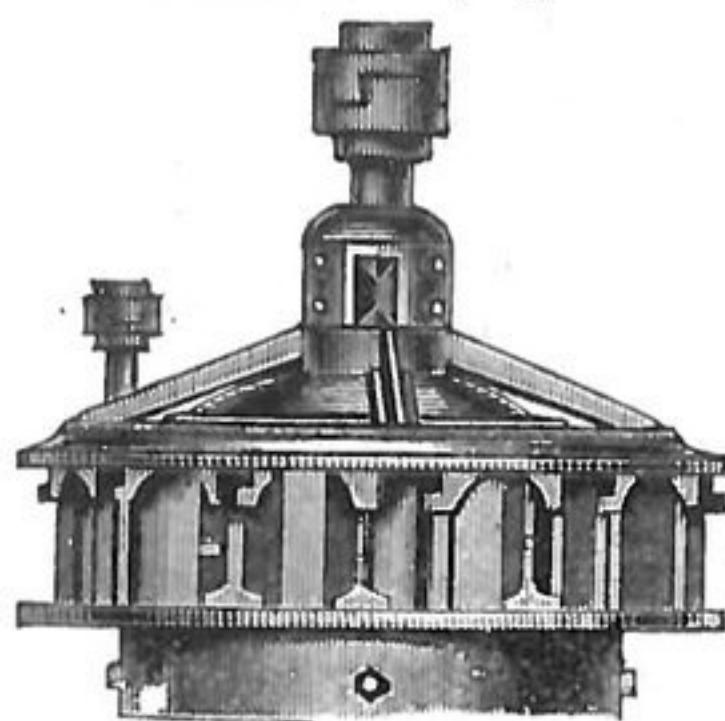
WE SOLICIT YOUR TRADE.

The Jonathan Mills Mfg. Co., Cleveland, Ohio, U. S. A.

THE IMPROVED "SUCCESS"

THIS WHEEL IS BOTH DURABLE AND CHEAP
PERCENTAGE: {

Full Gate..... 86.29
½ Gate..... 86.07
¾ Gate..... 81.25



SEND FOR PAMPHLET TO

S. Morgan Smith, York, Pa.

ATTENTION MILLRIGHTS!

A BOOK YOU ALL WANT.

LEFFEL'S CONSTRUCTION of MILL DAMS AND BOOKWALTER'S MILLWRIGHT & MECHANIC A STANDARD WORK.

This practical work of 288 pages gives with full illustrations and complete detail how to build or repair all kinds of mill dams.

PRICE FIFTY CENTS.

Or will be sent with a copy of "THE MILLING WORLD" for one year (postage prepaid) for \$1.25.
—ADDRESS—

McFAUL & NOLAN, DRAWER 203, BUFFALO, N. Y.

* THE INK *

WITH WHICH THIS PAPER IS PRINTED
IS MADE BY THE
QUEEN CITY PRINTING INK CO., CINCINNATI, O.

THE STEVENS PORTABLE MILLS

For CORN and FEED GRINDING

Genuine French BUHR STONES

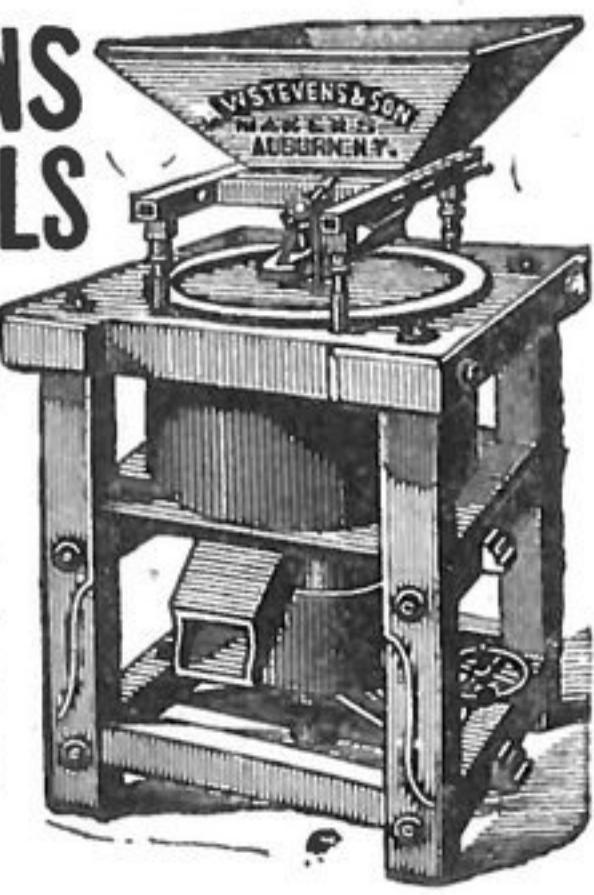
Power Corn Sheller

Prices Below the Lowest

A. W. STEVENS & SON

AUBURN, N. Y.

Mention this paper.



of the United States and Canada write us for our new pamphlet and revised price list of

Jonathan Mills UNIVERSAL

FLOUR DRESSER.

The best machine on the market. Giving satisfaction everywhere in the best mills in this country. Thousands in use. We carry a full line of Crown Silk anchor Bolting Cloth and Grit Gauzes.



AN IMPORTANT CLUB OFFER SCRIBNER'S MAGAZINE



Gives its readers literature of lasting interest and value. It is fully and beautifully illustrated and has already gained a more than national circulation exceeding 125,000 copies monthly.

PRICE 25 CENTS A NUMBER. \$3.00 A YEAR.

SPECIAL ARRANGEMENTS with Messrs. Charles Scribner's Sons the Publishers enable us to offer SCRIBNER'S MAGAZINE with the

MILLING WORLD at \$3.50 a year. Send in your Subscription at once. Address, THE MILLING WORLD, BUFFALO, N. Y.

WHEN WRITING TO ADVERTISERS PLEASE MENTION "THE MILLING WORLD."



NEW HOME SEWING MACHINE CO. ORANGE - MASS.

CHICAGO, ILL. ATLANTA, GA. CALIFORNIA

ST. LOUIS, MO. FOR SALE BY DALLAS, TEX.

N. BUSSENDORFFER.

L. L. WHITLOCK,
Advertising Agent

FOR MANUFACTURERS.

TRADE JOURNALS A SPECIALTY.

P. O. DRAWER 5323. BOSTON, MASS.

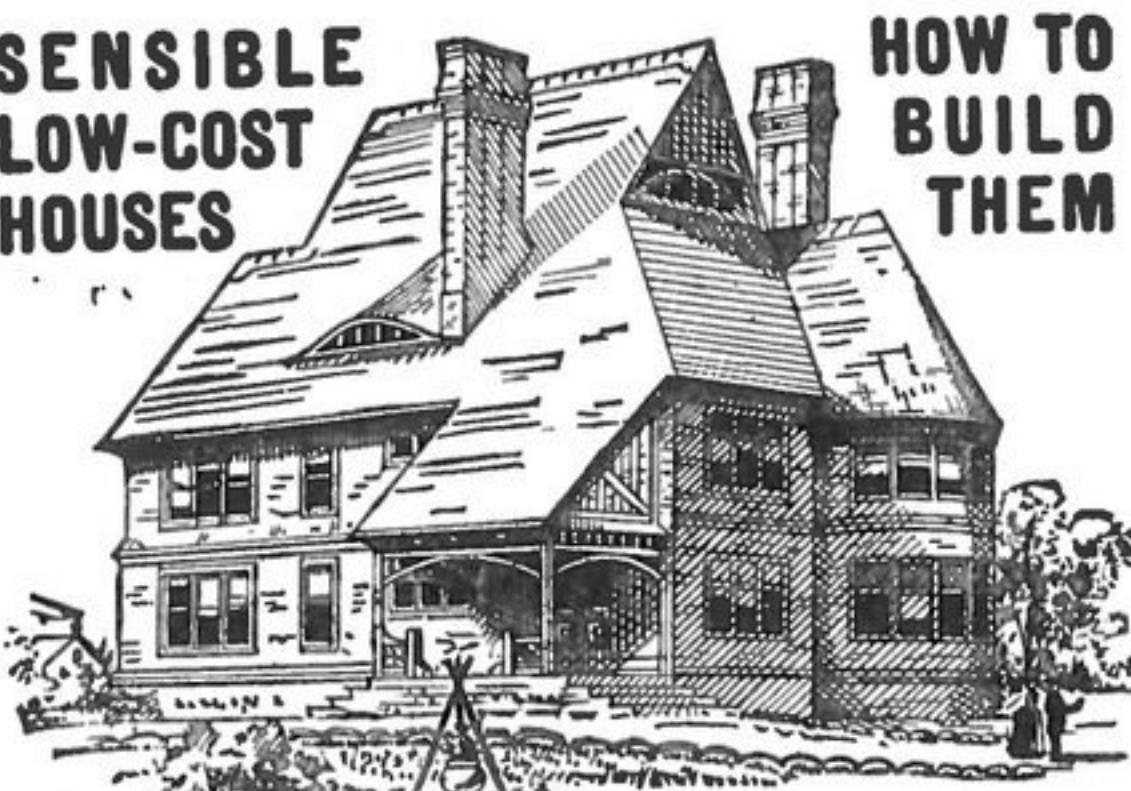
As Agent for Advertisers instead of Papers, I obtain the Best Rates Possible for my Customers.

"Cooper on Belting"

A Treatise on the Use of Belting for the Transmission of Power. With illustrations of approved and actual methods of arranging Main Driving and Quarter Twist Belts, and of Belt Fastenings. Examples and Rules in great number for exhibiting and calculating the size and driving power of belts. Plain, Particular and Practical Directions for the Treatment, Care and Management of Belts. Descriptions of many varieties of Beltings, together with chapters on the Transmission of Power by Ropes; by Iron and Wood Frictional Gearing; on the Strength of Belting Leather; and on the Experimental Investigations of Morin, Briggs, and others, for determining the Friction of Belts under different tensions, which are presented clearly and fully, with the text and tables unabridged. By JOHN H. COOPER, M. E. Second Edition. One vol., demy octavo. Cloth, \$8.50. Sent post-paid on receipt of price. Address,

McFAUL & NOLAN, BUFFALO, N. Y.

SENSIBLE LOW-COST HOUSES HOW TO BUILD THEM



A large Atlas, giving illustrations and full descriptions of 56 desirable modern houses, costing from \$800 to \$7500. Every detail profusely illustrated, showing many valuable original ideas. Shows what to do and what not to do. Houses adapted to all climates described. The latest, best, and only cheap work published. Sent by mail on receipt of \$1.00. NATIONAL ARCHITECT'S UNION, PHILA., PA.

EUROPEAN ECHOES.

THE French minister of agriculture has made his final report of the wheat crop of France for 1888. He estimates the production at 263,424,000 bushels of 60 pounds. Sept. 29 his estimate was 266,168,000 bushels. The annual average requirement for seeding and consumption is about 345,000,000 bushels. The average annual production for the past 10 years has been about 292,000,000 bushels. The production in 1887 was 308,600,000 bushels.

SAYS an English writer: Wheat culture in the United States is generally conducted on a cheaper and more rough-and-ready method than is practiced in Great Britain, so that instead of costing £8 an acre, we find over the vast regions of the western states, where nearly half the exported wheat is grown, the total expenses are covered by 40s to 42s an acre. In some parts of Dakota, in Manitoba and California the cost of production is said to be rather less. It is always considered that Minnesota wheat can be sold at British ports with a profit to all concerned at about 22s to 25s a quarter.

SAYS the London "Miller:" Formerly most of the Indian wheat came to Great Britain, at least four-fifths of it, but during recent years the proportion imported into the United Kingdom has been rather less, although the actual quantity has been greater. The price of Indian wheat at the place of export has been a few cents lower than that of American wheats, but the ocean freights have been about as much in favor of the American product as a compensation, and on arrival the latter is found to be cleaner and better, and is, therefore, not prejudiced for best milling uses by the Indian grain.

AMERICAN millers who have only one kind of wheat to grind the year round, and those devotees of single-wheat milling, who would let the baker do the blending, will be interested to know that it is not an uncommon thing in English mills for millers to grind a mixture of six different kinds of wheat. At this moment a miller of our acquaintance is grinding a mixture of California, Hungarian, Russian Azima, Dede Agatch, Kurrachee and English, divided into 18 parts, and is getting a yield of 71 per cent. on the uncleaned wheat.—London "Millers' Gazette." Probably greater interest would be manifested in the quality of the flour made from such a mixture. Professor Jago calls it "nondescript," and it fails generally to receive the highest praise of the bakers who use it.

SAYS the London "Miller" of March 18: Opportunity more and more favors buyers of foreign wheat. English samples are, on the contrary, hard to get at prices that allow of flour being made at a profit. The season for spring-sowing is much delayed, and abroad in the past week there have been great snow-storms, blocking the railroads between Germany and Russia. At home the three last days have nicely dried up the surface soil and favored tillage operations. At mar-

ket a period of activity in the fields is wished for as likely to produce activity, to some extent, among buyers on the exchanges. Frequently there arises a briskness in demand for imported corn when in the Lent season sowing goes on in the rural districts. On the other side, when canals are again navigable in America, and rivers and harbors in south-eastern Europe, an increase of shipments to an important extent is expected, so that a further decline in prices seems not unlikely, unless a renewed demand for the Continent neutralizes other influences. Decidedly there is absent from the markets any sure clue-line for sellers or buyers to follow; accordingly indecision permeates opinion generally. The hand goes on feeding the mouth without putting aside any store.

MILLING PATENTS.

Among the patents granted April 2, 1889, are the following:

Adam L. Epley, Springfield, O., No. 400,447, a feed-mill. Edward T. Williams, Carrollton, Ky., No. 400,533, a grinding-mill.

Geo. W. Bell, River Falls, Wis., No. 400,538, a middlings-purifier.

Griff De Owens, Loyalton, Dak., No. 400,551, a bag-holder.

Henry Scholfield, New York, N. Y., No. 400,604, a rice-huller.

Valentin Weber and Jas. R. Harrison, Princeville, Ill., No. 400,615, a grain-meter.

Friedrich G. Winkler, Zschoppau, Saxony, Germany, No. 400,619, a method of sifting granular material, No. 400,620, a rotating wave-generating sifter, and No. 400,621, a sifting-machine, all assigned to Robert E. Lester, New York, N. Y.

John B. Wheatley, Detroit, Mich., No. 400,720, a feed-regulator.

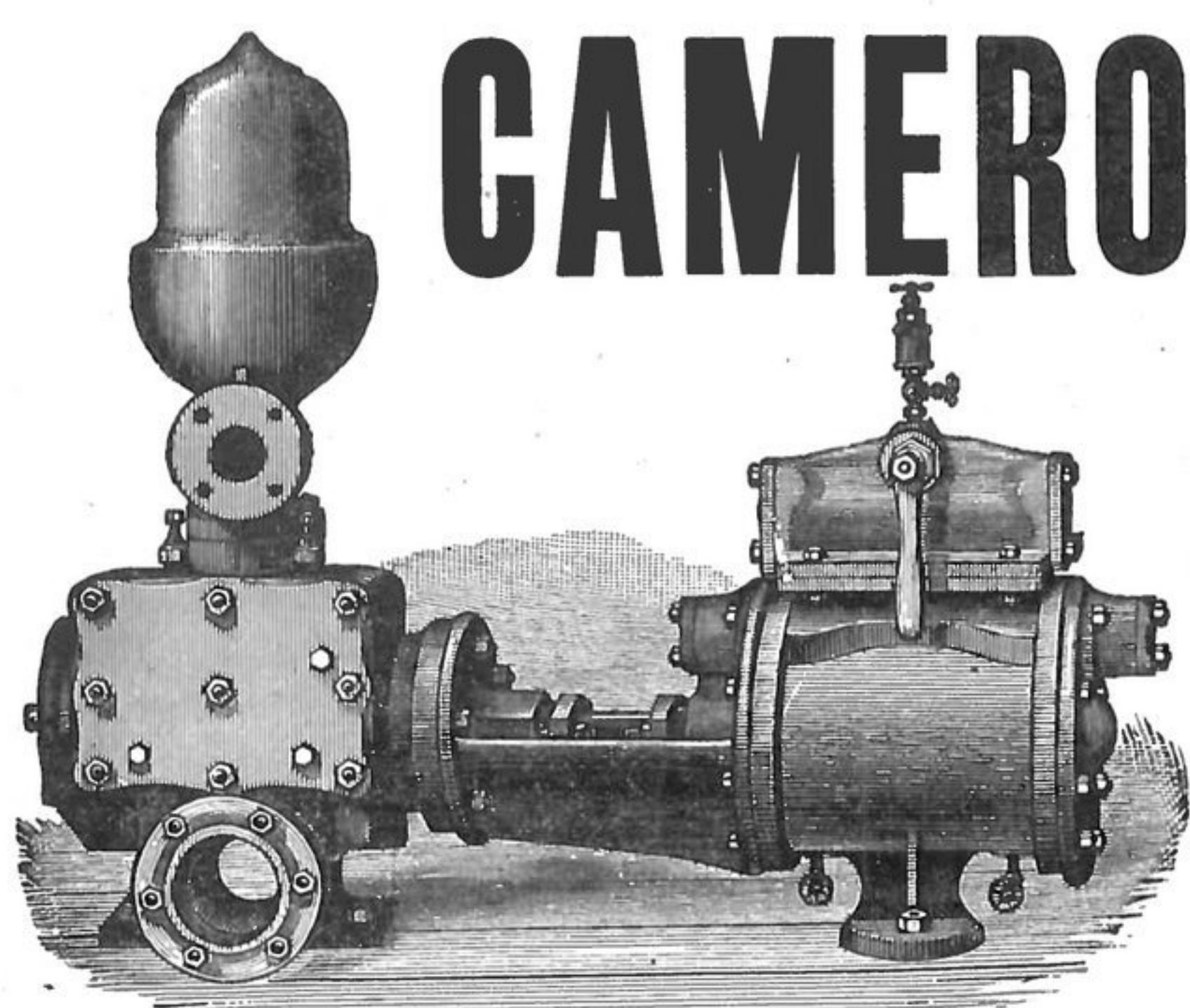
Geo. B. Howland, Pontiac, Ill., No. 400,894, a grain-meter.

CONTEMPORARY COMMENT.

The fixing of prices in order that a living profit may be insured to all classes of the trade is a matter which can only be properly adjusted by the consuming demand.—Minneapolis "Market Record."

It is a fact that the president of a St. Louis brewery company is paid a larger salary than that of the president of the United States. He says he has less patronage to dispense and less glory, but lots more fun than his honored compeer. He goes to Europe every year in fine style, lives luxuriously and happily when at home, is the happy father of sixteen children and the leader in a race of four neighbors, each determined to add most to our city's population, and whose combined offspring at the last public count numbered fifty-seven. All these facts may not relate strictly to our special line of business, but they effectually veto the insinuations that St. Louis is not progressive or that her people lack energy or enterprise.—St. Louis "Miller."

The Wharton Flouring Mill Co., Birmingham, Ala., propose to issue bonds to the amount of \$50,000.



CAMERON STEAM PUMP

THE STANDARD OF EXCELLENCE.

SIMPLE! COMPACT! DURABLE!
"NO OUTSIDE VALVE GEAR."

Steam, Air & Vacuum Pumps in Every Variety

FOR ILLUSTRATED CATALOGUE ADDRESS

THE A.S. CAMERON STEAM PUMP WORKS

Foot of East 28th Street, - New York.

RELIANCE OIL & GREASE CO., CLEVELAND, O.,
—MANUFACTURERS OF—
Finest Lubricants for Milling Plants. A Challenge to the World.

WRITE US. "VALVE OLEINE"—675 Degrees Fire Test, Cylinder Oil. "RUSSIAN"—Engine and Machine Oil.
"CHIEF"—Roller Mill Lubricant. "ANCHOR"—Roller Mill Grease.
"NIAGARA"—Belt Grease. "CHELSEA"—Scale Solvent, Best on Market. Agents Wanted.

FREE—SAMPLES, CATALOGUE, AND ALL INFORMATION.



MOORE'S
PATENT
BARREL HEATER.
For all
kinds of coo-
rage. Thousands
in use in all parts of the
U. S. Send for Circular.

JOLIET STOVE WORKS JOLIET ILL.



SHIPPERS
CAN SAVE TIME
TROUBLE AND
CASH
BY
USING
BARLOW'S
PATENT
MANIFOLD
SHIPPING
BLANKS. SEND FOR
SAMPLE SHEET & PRICES
BARLOW BROS. GRAND RAPIDS, MICH.

STANDARD SCIENTIFIC BOOKS.

THE PUMP CATECHISM—By Robert Grimshaw, M. E. A Practical Help to Runners, and Makers of Pumps of any kind. Just out. In cloth, one volume. Price postpaid. \$1.00

A TREATISE ON FRICTION AND LOST WORK IN MACHINERY AND MILL WORK—By Robt. H. Thurston. Containing an explanation of the Theory of Friction and an account of the various lubricants in general use, with a record of various experimenters to deduce the laws of Friction and Lubricated Surfaces. Copiously illustrated. 8 vo., cloth. \$3.00

KNIGHT'S MECHANICAL DICTIONARY—By Edward H. Knight, A.M., L.L.D. A book for all persons who make, buy, sell, use or want to know anything about tools or machines, now complete in four volumes, bringing the record down to this time. Sheep; 4 volumes. \$81.50

THE AMERICAN HOUSE CARPENTER—By R. G. Hatfield, (1880). A Treatise on the art of Building, comprising styles of architecture, strength of materials, theory and practice of construction of floors, framed girders, roof trusses, stairs, doors, windows, mouldings and cornices. Numerous fine wood engravings. 8 vo., cloth. \$5.00

A MANUAL OF CATTLE FEEDING—By H. P. Armsby, Chemist of the Connecticut Agricultural Experiment Station. With plates; 12 mo., cloth. \$2.50

A TREATISE ON TOOTHED GEARING—By Howard J. Cromwell. 12 mo., cloth. Complete Instructions for Designing, Drawing and Constructing pur Wheels, Bevel Wheels, Lantern Gear, Screw Gear, Etc. Etc. \$2.00

STEAM ENGINE CATECHISM—By Robert Grimshaw. A Series of thoroughly practical questions and answers arranged so as to give to a young engineer just the information required to fit him for properly running an engine. 18 mo., cloth. \$1.00

THE WINDMILL AS A PRIME MOVER—By A. R. Wolff, M. E. Comprehending everything of value relating to windmills, their use, designs, construction, etc. With many fine illustrations. 8 vo., cloth. \$3.00

BOOKKEEPING & ACCOUNTANTSHIP—By Thomas Jones. For self-instruction or office reference. Based on twenty years experience in teaching. 8 vo., cloth. \$2.50

THE ARCHITECT AND BUILDERS POCKET-BOOK—By F. E. Kidder. With original tables and valuable information for architects, builders, engineers and contractors. Fully illustrated. In Pocket-Book form. Morocco. \$3.50
Any book extant at lowest prices. Great inducements to parties collecting libraries.

McFAUL & NOLAN, BUFFALO N. Y.

WIRE BOLTING CLOTH—STEEL, BRASS & TINNED

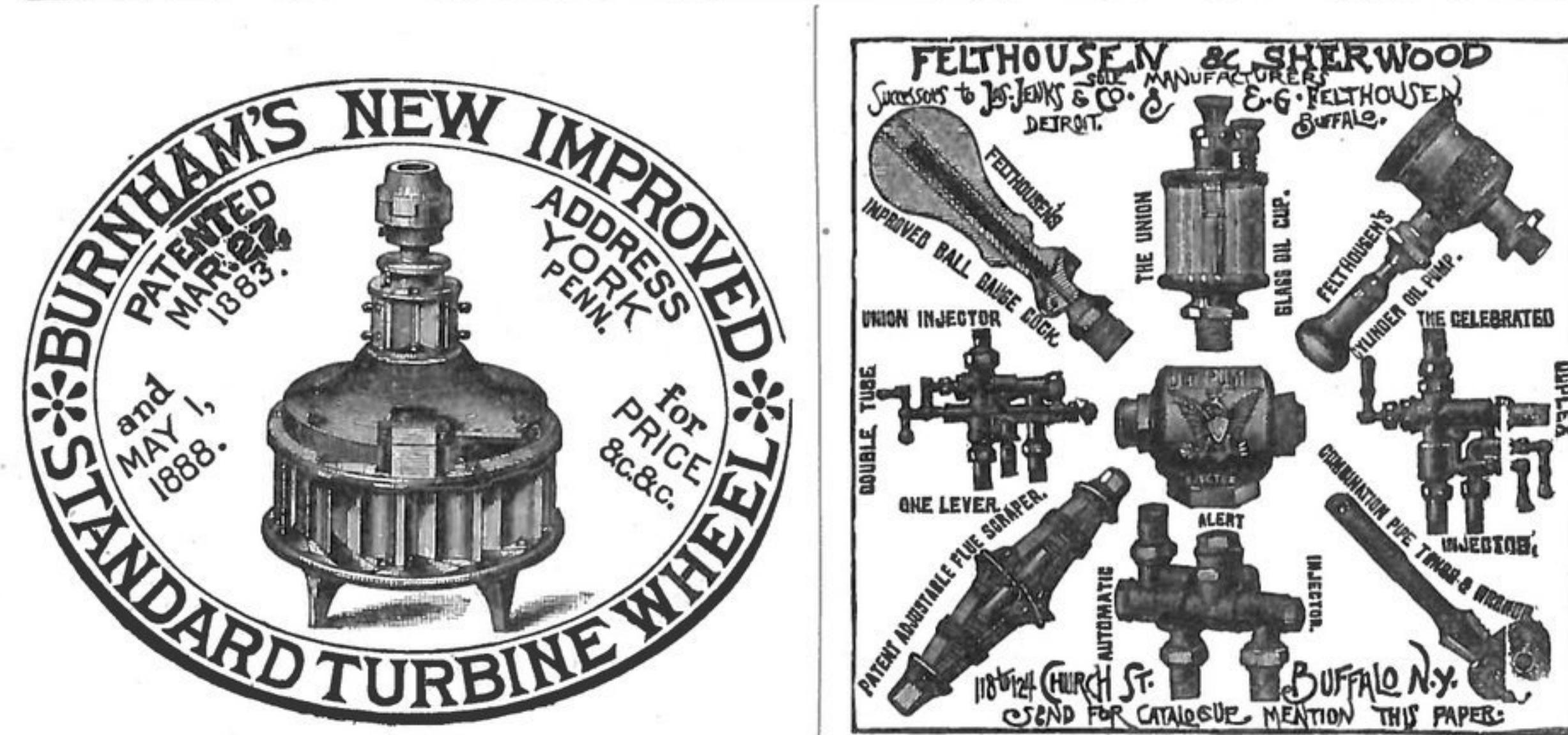
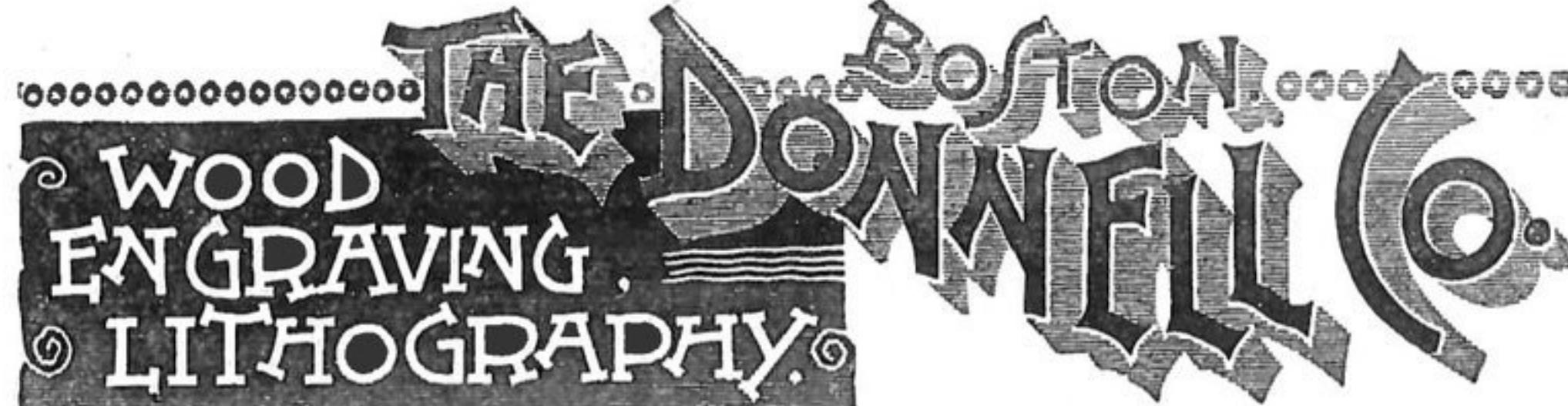


CLOTHS MADE UP WITH PATENT BINDING WHEN DESIRED.

—[ESTABLISHED 1844]—
Exclusive Manufacturers of the
"ACME" STEEL TEMPERED

BATTERY & BOLTING WIRE CLOTH.
Also manufacturers of Bran Duster Cloth, Plated Wire Mill Screen Cloth, Smut Cloth, Brass and Copper Wire Cloth. A full line constantly on hand. Send for samples and price lists.

Brooklyn Wire Cloth Works.
NO. 107 JOHN STREET, NEW YORK.



THE CURTIS
PATENT RETURN STEAM TRAP.

IT is noiseless, positive, rapid, will return all condensation back into the boiler, and works equally well in connection with reduced pressure or exhaust steam, also when the return is below the water line of the boiler.

THE CURTIS REGULATOR COMPANY,
No. 74 BEVERLY ST., BOSTON, MASS.

GENERAL AGENCIES.

NEW YORK, 109 Liberty st. CHICAGO, 218 Lake st.
PHILADELPHIA, 2035 N. Front st. ST. LOUIS, 707 Market st.
MINNEAPOLIS, 210 S. Third st. NEW ORLEANS, 21 Union st.

OFFICE OF THE MILLING WORLD,
BUFFALO, N. Y., April 6, 1889.

On Friday of last week wheat was again lower on continued Continental selling in New York. March wheat started in at 88c., but at noon the crush of Continental sales seemed to be over and that month closed at 88½c. Options 7,000,000 bushels. In Chicago the shorts were frightened by dry-weather reports and wheat in that market was decidedly higher, March closing at \$1.02½, April at \$1.02½ and May at \$1.04. March corn closed at 42½c. and oats at 30½c. Wheat flour was dull, unsettled and irregular. The minor lines were featureless.

On Saturday the rush of liquidation appeared to be finished and the markets were less active and firmer. Large holders expressed confidence in the situation. In New York March wheat ruled at 88½c. and April at 88½c., with May closing at 90c. and June at 91c. Options 3,000,000 bushels. In Chicago April closed at \$1.00½ and May at \$1.01½. April corn closed at 45½c. and oats at 30½c. Wheat was exceedingly dull. Buyers did nothing, as they were looking for another break in wheat that would carry flour down still lower. The minor lines were featureless.

Monday opened with dull, weak and lower wheat markets, on reports of rains in the West, on lower cables and on unexpectedly large stocks in Great Britain. April wheat closed at 87½c. in New York. Sales small. Exporters and millers made some purchases. April corn closed at 42c. and oats at 31c. Wheat flour was lower with wheat. The New York stock was as follows: April 1, 1888, 90,780 barrels winter and 61,385 bbls spring, or 155,165 barrels against 243,385 barrels April 1st, 1889, when 80,248 were winters and 163,137 springs; showing nearly 100,000 more springs and 10,000 less winters than a year ago, due to the higher prices and poorer quality of the springs. The minor lines were quiet and featureless.

On Tuesday continued foreign selling in New York and weaker cables lowered the wheat market again. April wheat closed down at 86½c. Options 3,100,000, bushels. Some export deals were reported. In Chicago April closed at 98½c. and May at \$1. April corn closed up at 43c. and oats at 31c. Wheat flour was duller than ever, in sympathy with wheat. Trade was light. Exporters were out of the market. The visible supply in the United States and Canada was as follows:

	1889.	1888.	1887.
March 30.	March 31.	April 2.	
Wheat.....	29,439,231	34,884,476	51,585,985
Corn.....	16,831,835	9,165,142	18,784,702
Oats.....	7,137,768	4,145,661	3,904,721
Rye.....	1,547,889	334,532	392,392
Barley.....	1,348,144	1,777,560	1,168,623

On Wednesday there was a weaker opening on reports of grain failures in Berlin, and a reaction upward in wheat and corn. April wheat opened at 86½c. and closed at 87½c. in New York. Options 4,450,000 bushels. Some export demand was reported for wheat to England. April corn closed at 43½c. and oats at 30½c. Wheat flour was dull but not lower. Winter-wheat holders refused concessions to sell. Trade small. The minor lines were quiet.

On Thursday the Chicago clique caused a break in wheat by "getting out," making the market lower, excited and irregular. In New York April wheat closed at 86½c., May at 87½c. and June at 88½c. Options 4,160,000 bushels. In Chicago April closed at 92½c., May at 93½c. and June at 80c. There was some export trade, the United Kingdom taking 7 loads and Bordeaux 7 more at 88½c. April corn closed at 43½c. and oats at 30½c. Rye grain was bid 53c. and

54c. asked for Western, and 58@60c. asked for State to arrive in New York for export. Barley was neglected at 65@75c. for poor to good Canada, 65@70c. for 6-rowed, and no 2-rowed on the spot. Malt was nominally 95c. @ \$1.05 asked for Canada, 95½c. for common, 85@95c. for 6-rowed State, and 85@90c. for 2-rowed State. Mill-feed was weak and irregular at the following quotations: 40-lbs, 65@70; 60-lbs, 65@70; 80-lbs, 65@70c; 100-lbs, 75@85, including sharps, and 75@77½c for rye; screenings, 50@80c; oil meal, \$1.45@1.50; cotton meal, \$1.25@1.28; barley meal, 90c nominally for the latter.

Wheat flour was dull, slow and weak. Concessions were necessary to sell any line. Exporters were out of the market. Following were the quotations:

	SPRING FLOUR.	Sacks.	Barrels.
No grade.....	\$1.65@1.90	\$....@....	
Fine.....	1.90@2.15	2.25@2.55	
Superfine.....	2.40@2.85	2.95@3.00	
Extra No. 2.....	2.90@3.10	3.00@3.15	
Extra No. 1.....	3.30@3.70	3.40@3.80	
Clear.....	3.50@4.30	3.95@4.45	
Straight.....	4.70@5.20	5.20@5.35	
Patent.....	5.30@6.00	5.80@6.50	

	WINTER FLOUR.	Sacks.	Barrels.
No grade.....	\$1.65@2.00	\$....@....	
Fine.....	2.35@2.60	2.55@2.75	
Superfine.....	2.40@2.80	2.80@3.10	
Extra No. 2.....	3.25@3.50	3.50@3.60	
Extra No. 1.....	3.50@4.50	4.75@5.25	
Clear.....	3.95@4.35	4.25@4.65	
Straight.....	4.75@4.95	4.75@5.25	
Patent.....	4.90@5.25	5.05@5.60	

	CITY MILLS.	
W. L. grades.....	\$4.50@4.65	
Low grades.....	1.90@2.25	
Patents.....	5.50@6.50	

Rye flour was dull at \$2.75@3.15. Corn products were irregular at the following quotations: Coarse meal, 82@84c. fine yellow and white, 95c@\$1.00; Brandywine and Sagamore, \$2.85; Western and Southern in barrels, \$2.70@2.80; do coarse and fine in sacks, 75c@\$1.10; hominy, \$5.40@2.75; grits, \$2.35@2.65.

BUFFALO MARKETS.

WHEAT—A private dispatch from Chicago says that liberal selling of May induced considerable selling of July by outsiders and local operators, and it is further reported that the bulls are going into the latter month more freely. Chicago May open at 92c, advanced to 94c, declined to 90½c. and closed at 92½c., a decline of 1½c from the closing price of Thursday. Spring wheat was firm; the limit for new No. 1 hard was advanced to 25c over May of which 4,500 bu. were sold at \$1.17; sales also included 16,000 bu. No. 1 Northern at \$1.01, and 1,000 bu. do at \$1.02½. New No. 1 hard closed at \$1.17½. No. 1 Northern at \$1.02½, and No. 2 do at 96½c. Winter wheat in light supply and good demand; sales 8 carloads No. 2 red at 97c, 1,000 bu. No. 3 red at 78½c, and 1 carload No. 1 white at \$1.00. At a limit of 6c over Detroit No. 1 white closed at \$1.01 and No. 2 red at 96c. **CORN**—In good demand, market closing firm; sales 2 carloads No. 3 at 87½c, 9 do do at 87½c. 2 do high mixed No. 3 at 87½c, 2 do No. 4 at 87c. 2 do No. 2 white at 89c. 1 do No. 2 yellow at 88½c, 3 do No. 3 yellow at 88c, and 1 do do at 88½c. **OATS**—Steady with a light demand; sales 2 carloads good No. 2 mixed at 28c, 8 do No. 2 white at 31c, 1 do do at 30½c; and 1 do do at 31½. **BARLEY**—The market remains dull and weak; No. 1 Canadian quoted at 68@70c; No. 2 65@67c; No. 3 extre, 60@62c; No. 8 57@58c. **RYE**—Nominal at 52@53c. for No. 2 Western. **FLOUR**—City ground—Patent spring, \$7.25@7.50; straight Duluth spring, \$6.50@6.75; bakers' spring, best, \$6.00@6.25; do rye mixture, \$5.25@5.50; patent winter, \$7.00@7.25; straight winter \$5.75@6.00; clear winter, \$5.50@5.75; low grade, \$8.00@4.25; rye, \$8.50@8.75 per bbl; buckwheat, \$2.50 per cwt. **OATMEAL**—Akron, \$6.00; Western \$5.75 per bbl; rolled oats, in cases, 72 lbs, \$8.25. **CORNMEAL**—Coarse, 80c; fine, granulated, \$1.50 per cwt.

Argentine crops are reported badly hurt. January was disastrously wet, and it is said but little grain can be exported this season. No inquiry exists for tonage yet, while in previous years charters were operating freely at this date. February opened with very unsettled weather and rain falling in many parts. In a young country like Rosario the grain is left in the fields, as there are no barns or means of shelter, and rain in harvest almost amounts to a calamity. In Chili the wheat crop is reported below expectations, and the surplus for export is not likely to exceed 4,000,000 bushels. Even now California wheat is going to Chili in large quantities, and it is not easy to understand how

Chili can export 4,000,000 bushels when she is really importing wheat from the United States

It has always been thought that ears of corn have an even number of rows, and that one with an odd number of rows would be an impossibility. In slavery times this question was discussed, and a negro in Kentucky claimed that he had seen ears of that kind. His master told him he would give him his freedom for an ear with an odd number of rows. This was in early spring, but in fall, during corn-gathering time, the negro came with a sound ear of corn with thirteen rows. He received his freedom. A long time afterward the old negro said that in roasting-ear time he took a sharp knife, cut out the one row of grains, bound the ear together, and knew just where to find it when gathering time came.

Says the Toronto, Ontario, *Monetary Times*: A year ago we stated our belief that the time was not far distant when Canadian barley would cease to find a ready market in the United States and would be supplanted by barley of home growth. This opinion was hotly contested by some who professed to have superior means of acquiring information on the subject. What was matter of opinion last year is now fast becoming settled fact. At present there is very little demand for Canadian barley in the Republic. We are glad to see that steps are being taken to ascertain whether a market for our barley can not be found in England. The sole question, we imagine, is its suitability for making such beer as the English taste demands; and for this purpose some kinds may be better adapted than others. The Canadian High Commissioner in London has obtained several samples of Canadian barley which will doubtless be put to the necessary test. And the Minister of Agriculture, Ontario, has made inquiries which point to a satisfactory result.

DID IT ELECT HARRISON?

The following appeared in a Minnesota paper: "Members of the Democratic party have been using all subterfuges to account for their overwhelming defeat, and numerous are the causes alleged.

"I was talking with several of the vanquished on Fourth Street the other day, opposite a bill board, and one of the party exclaimed: 'If it had not been for the closeness of the National Committee in the expenditure of money, we would have elected our man. The Republicans advertised their man like a circus.' Several of the party remarked that no advertising was done except small announcements in the papers, and a few 'hangers' on the dead walls.

"'Hangers?' said our informant. 'What do you call that but a circus poster?' pointing to a twelve-sheet medicine poster on the bill board, bearing the cut of Gen. Harrison and his grandfather.

"If the Democrats had advertised like that, Cleveland would have been re-elected."

The poster referred to was one of the familiar black and white Log Cabin Sarsaparilla posters sent out by an enterprising firm manufacturing old log-cabin home-cures, under the name of Warner's Log Cabin Remedies, among others the famous Log Cabin Sarsaparilla, which is everywhere recognized as the best of all medicines for the cure of all disorders which are the results of impure blood.

The spring time of the year is the season when the system needs renovation; the long winter has caused the blood to become filled with impurities. Warner's Log Cabin Sarsaparilla will speedily restore the blood to a pure and healthy state, which insures health and happiness.

The firm putting out the medicine is the same which manufactures Warner's Safe Cure the standard remedy for the cure of all those diseases peculiar to the kidneys as well as those which are the results of disease in those organs, and which has met with such phenomenal success for the past ten years.

INSURE IN THE
**TRADERS &
TRAVELERS**

Accident Company,
287 BROADWAY, NEW YORK.

BENEFITS.

\$5,000 for Death.
\$5,000 Loss of Limbs.
\$2,500 Loss of Limb.
\$2,500 Loss of Sight.
\$1,250 Total Disability.
\$650 Loss of One Eye.
\$25 Weekly Indemnity for
26 Weeks.
One Set of Individual Registry Plates
Included.

COST.

Four Quarterly Payments, \$10.00
Annual Dues, - - - 1.00
Membership Fee, 5.00. \$11.00

IMPORTANT NOTICE.—The Traders & Travelers Accident Co. of New York desire the services of one responsible representative in each town to act as agent for the general transaction of their business. A liberal and permanent arrangement will be made with parties who can fill the above requirements. Address

C. S. SOMERVILLE, Sec'y.

GIVES
MORE
POWER
USING
LESS
WATER
THAN
ANY
OTHER
WHEEL.



PREJUDICE Is a thief and robs you of many good things in this age of phenomenal progress. It pays to investigate. Send for Illustrated Price List of Reliance Safety Water Columns. They protect life and property, save repairs and enforce economy. Every Column Warranted.

Reliance Gauge Co., 831 Sheriff St., Cleveland, Ohio.

THE "HARLOW"
Positive Feed Lubricators.

For Marine and Stationary Engines, Steam Pumps, Electrical and other Machinery.

MAXIMUM ECONOMY IN OIL.
MARKED ECONOMY IN FUEL.

Not dependent upon or operated by Steam Pressure, Condensation or Gravity. Not affected by changes of temperature.

BEING operated by some moving portion of the engine or machine to be lubricated, the "Harlow Lubricator" starts and stops with the engine or machine being lubricated, without requiring the slightest attention from the engineer or operator, always delivering the oil in any amount from a drop to a constant stream.

The cup can be filled at any moment while the engine or machine being lubricated is in operation, without causing any leakage either of oil or steam.

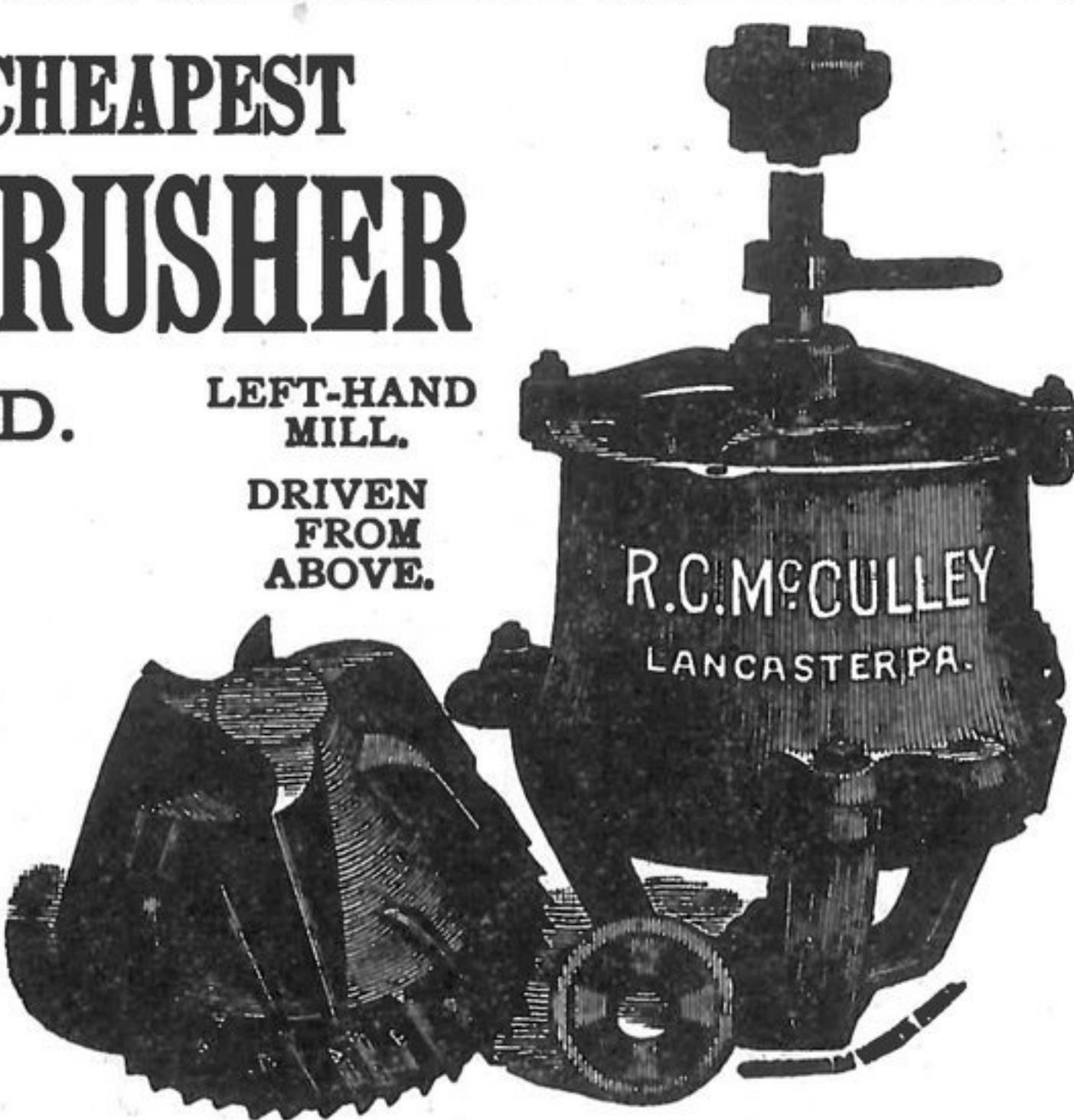
Harlow Lubricator Mfg. Co. BOSTON, Mass.
U. S. A.

THE BEST AND CHEAPEST
CORN AND COB CRUSHER
IN THE WORLD.

LEFT-HAND
MILL.

DRIVEN
FROM
ABOVE.

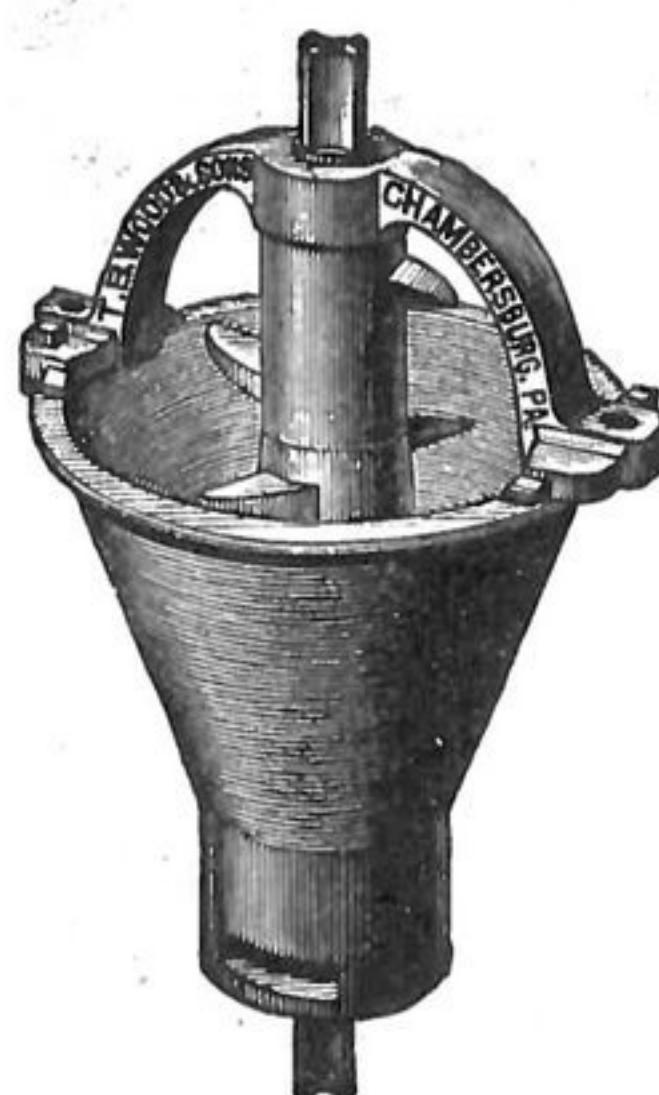
RIGHT-HAND RUNNER.



Please Send for Circulars.

R. C. McCULLLEY, LANCASTER, PENN.

**\$15 Will Buy the Best and Cheapest
CORN AND COB CRUSHER**



IN THE WORLD!

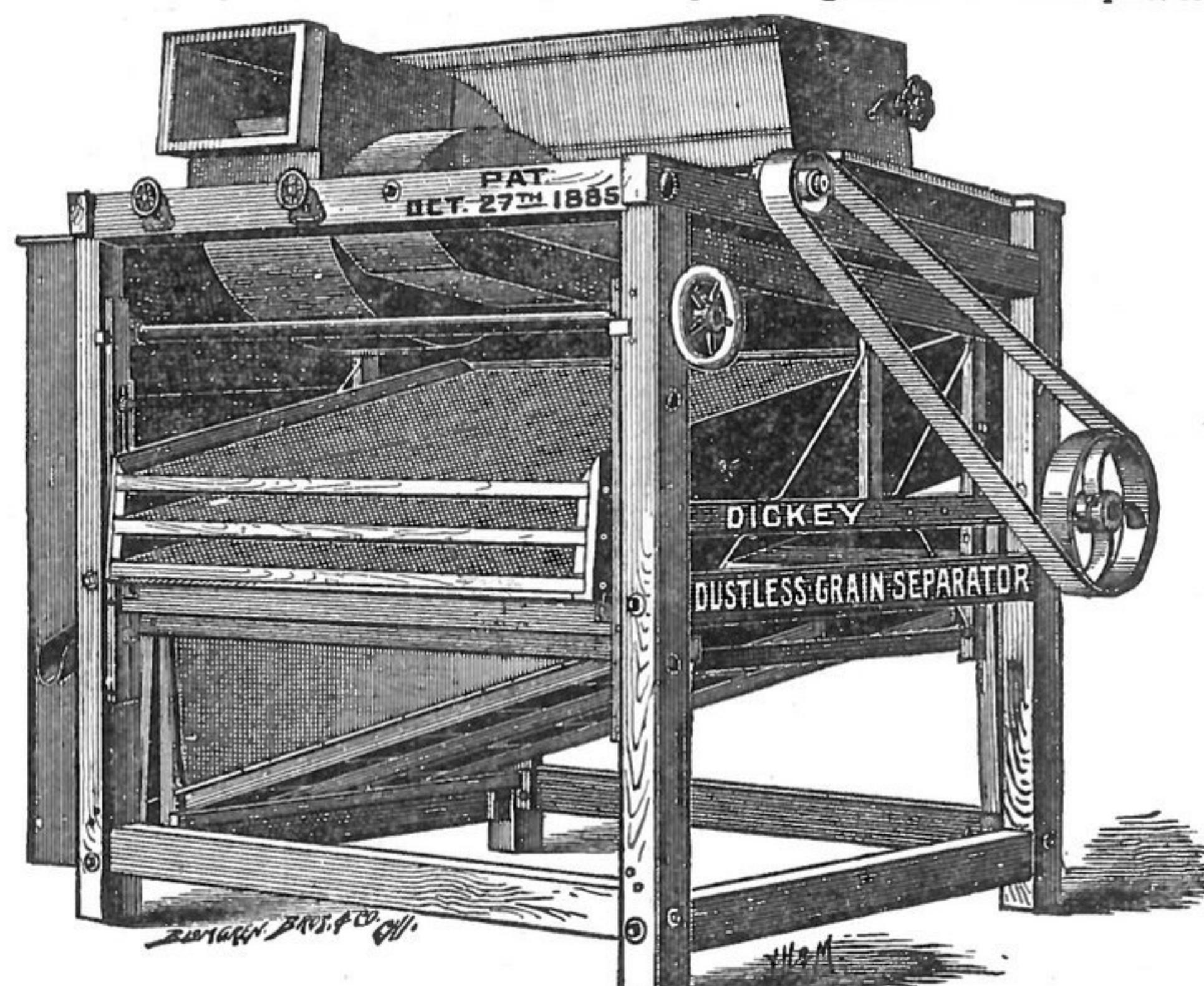
It can be driven either from above or below. Thousands of these Crushers are now in use throughout the United States and Canada, and are giving entire satisfaction. Send for circular, giving testimonials from millers who are using our Crusher, and know a good thing when they see it.

T. B. WOOD & SONS, CHAMBERSBURG, PA.

**DICKEY DUSTLESS
GRAIN AND FLAX SEPARATOR**

This Separator is our latest and most perfect, and guaranteed to be the superior of any now on the market. This machine, as can be seen by the cut, is not a warehouse fanning mill with one patent attachment, but is a Dustless Separator, made for the express purpose of thoroughly cleaning and separating all kinds of grain in large quantities; its construction is such that the working machinery and weight is all within the parts or anchors.

WE CLAIM FOR IT SUPERIORITY.



We claim for it Superiority over everything of the kind made, in simpleness, durability, saving of power, capacity and cost of construction. Its height will accommodate any number of spouts from different points, without moving machine. They have a capacity from 700 to 1,500 bushels per hour. We also control exclusively the manufacture of the celebrated Dickey Giant, End and Side Shake, Warehouse Mills, that have attained such a world-wide reputation. Sent on approval to any reliable party. For full particulars address,

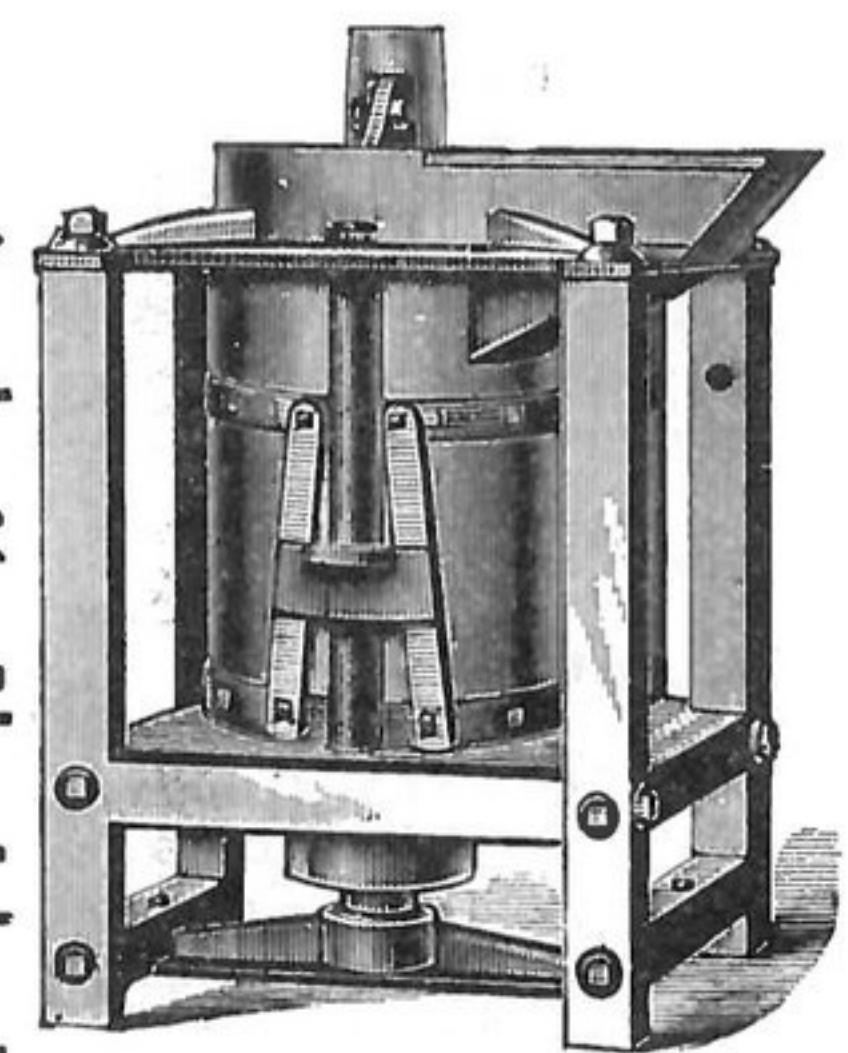
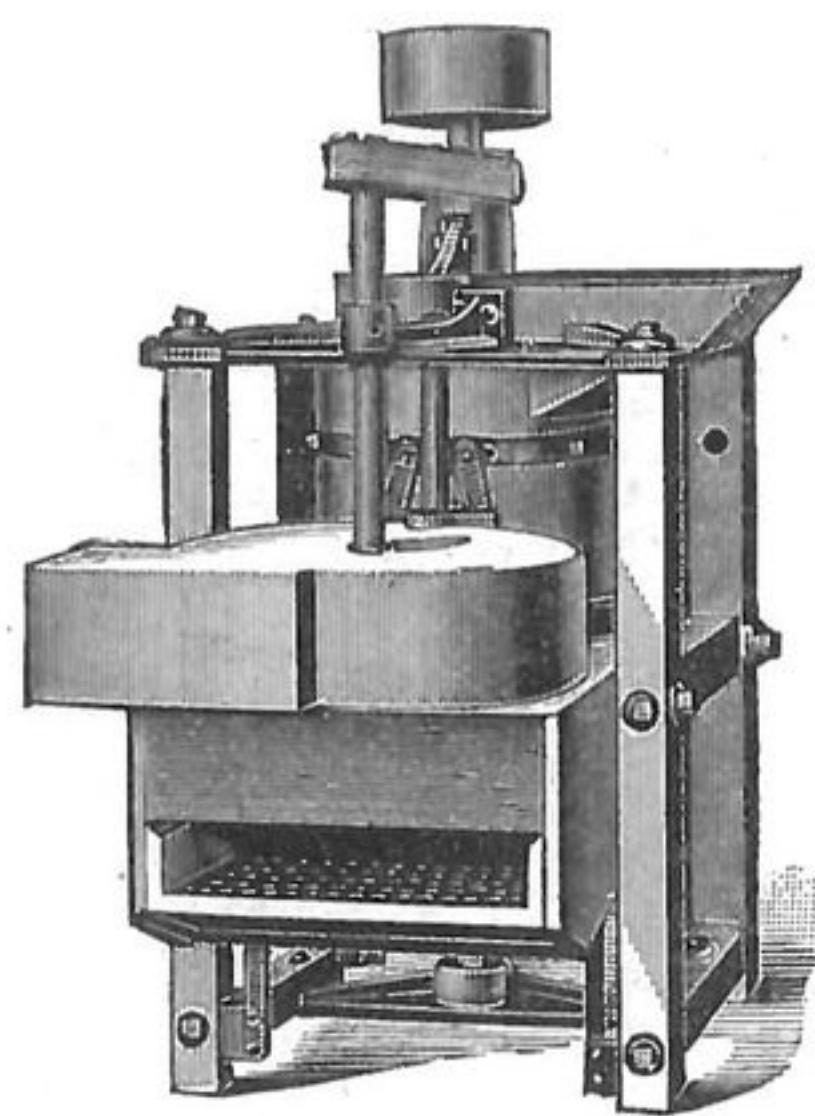
A. P. Dickey Manufacturing Co. Successors to Dickey & Pease, **RACINE, WIS.**

WE CLAIM FOR IT SUPERIORITY.

The LIPPOLD DUSTLESS CORN SHELLER & CLEANER

MANUFACTURED BY

The LIPPOLD MFG. CO.
ERIE - - PENN.



THE HIGHEST CAPACITY for the LEAST MONEY.

The Best Machines for Mills and Elevators.

Machines Sent on Thirty Days' Trial.

SHELL UNHUSKED CORN AND CLEAN IT PERFECTLY.

WRITE FOR ILLUSTRATED CIRCULAR WITH PRICES.

NAME THIS PAPER.

"DE MAN WOT KNOWS IT ALL
is allus a-makin' change, a-
buyin' ob experience."

The man who does not think that
he "Knows it All" about

Pumps, Steam Engines and Boilers
Can find out a great deal about
them in

GRIMSHAW'S PUMP CATECHISM - \$1.00
STEAM ENGINE CATECHISM - - - 2.00
BOILER CATECHISM - - - - - 2.00
PREPARING FOR INDICATION - - 1.00

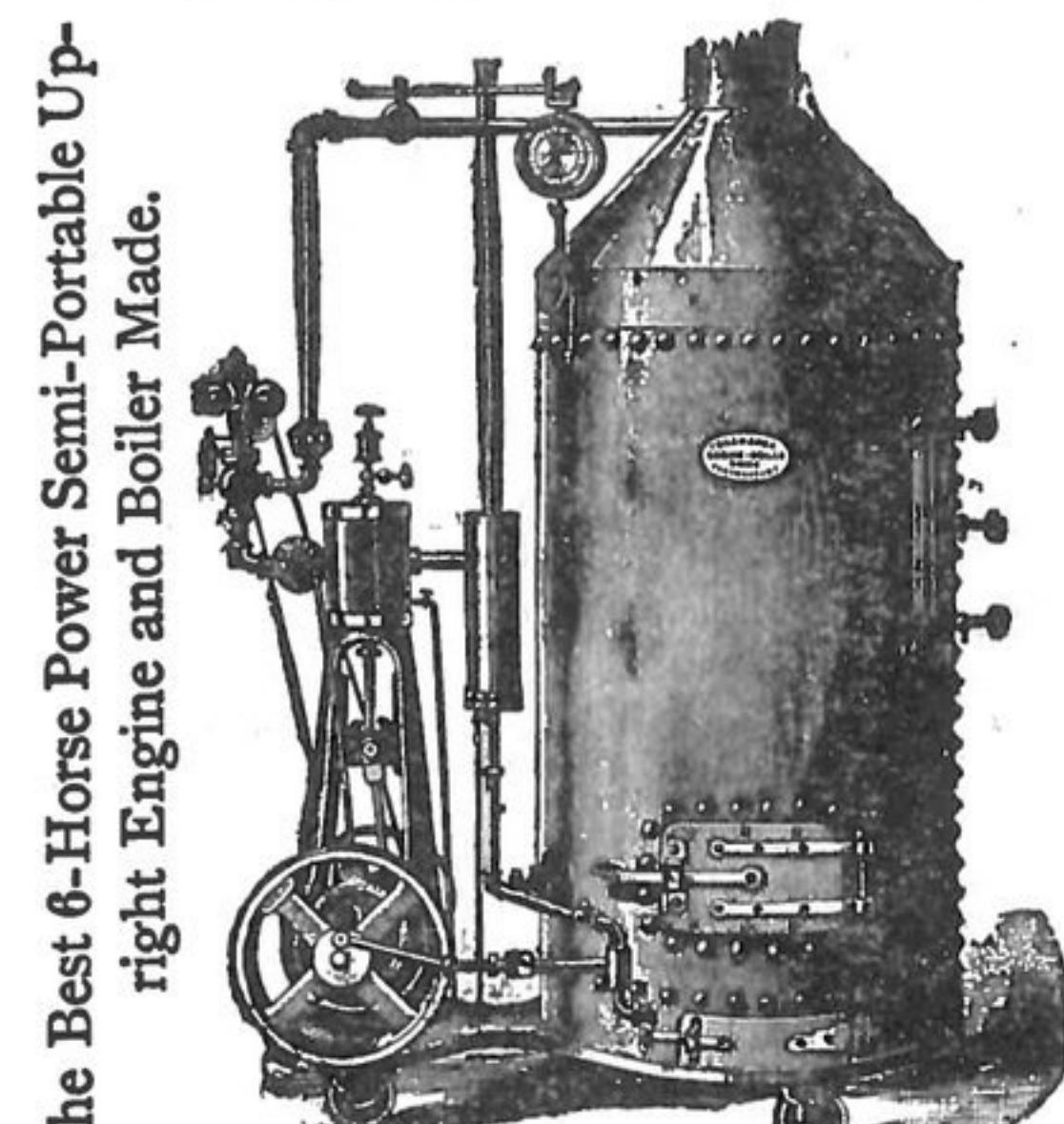
BY MAIL POSTPAID.

McFaul & Nolan, - Buffalo, N. Y.

TONAWANDA
ENGINE AND BOILER WORKS

A Large Assortment of Machinery.

SPECIAL PRICE. GUARANTEED.

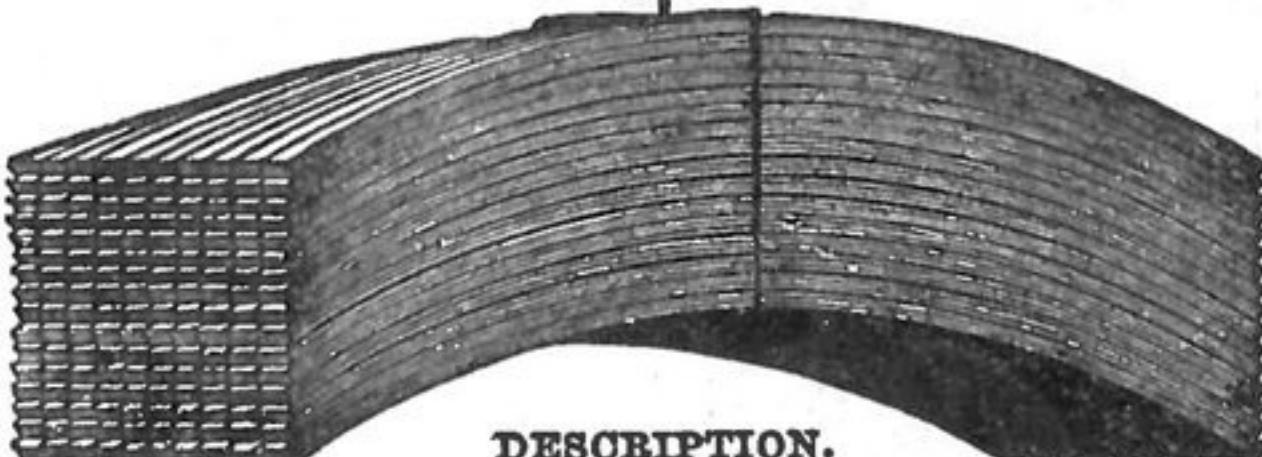


SEND FOR CATALOGUE.

ARMITAGE, HERSCHELL & CO.
Tonawanda N. Y.

The Best 6-Horse Power Semi-Portable Up-
right Engine and Boiler Made.

New Improved Patent Head Linings.



DESCRIPTION.

These Linings are curved edgewise and flatwise, besides having the edge beveled, so as to make them fit the head and chine PERFECTLY, without springing them edgewise when nailing.

If you use them once you will have NO OTHER. No need of pounding fingers, as the ends do not have to be held down while nailing. They are much more convenient to nail and look better than any other. They are first tied in bundles of two hundred, and, when dry, are put into bales, weighing about fifty pounds each, and tied with two strong wires, to make them handle better and to prevent loosing out in transit.

Write for prices and state about the number you use per year.

To convince you of their merit, and for the purpose of introducing them, I will ship a sample order of from five to ten thousand at a REDUCED RATE.

SEND US A TRIAL ORDER. SATISFACTION GUARANTEED. J. H. PETERS,
Owner of Patent and Manufacturer,
COLEMAN, MICH.

Chemical Fire Extinguisher Co.

38 & 40 LASALLE STREET.
CHICAGO, - - ILL.

MANUFACTURERS OF THE

Only Chemical Automatic Fire Extinguisher Made

No Freezing; No Corroding; No Leaking. Cheapness and Absolute Reliability and Reduction in Cost of Insurance. We also manufacture everything in the line of Chemical Extinguishers, from a full 100 gallon engine to a quart Hand Fire Extinguisher, of the best and most approved kind. One gallon of our chemical is equal to 500 gallons of water.

SEND FOR ILLUSTRATED CATALOGUE.



THIS WHEEL GIVES HIGH RESULTS, AND IS ACKNOWLEDGED THE BEST, MOST PRACTICAL AND EFFICIENT TURBINE MADE. FOR SIMPLICITY, DURABILITY, AND TIGHTNESS OF GATE IT HAS NO EQUAL.

State requirements and send for Catalogue to

T. C. ALCOTT & SON,
MOUNT HOLLY, N. J.

BOSS + ELEVATOR + BUCKETS.

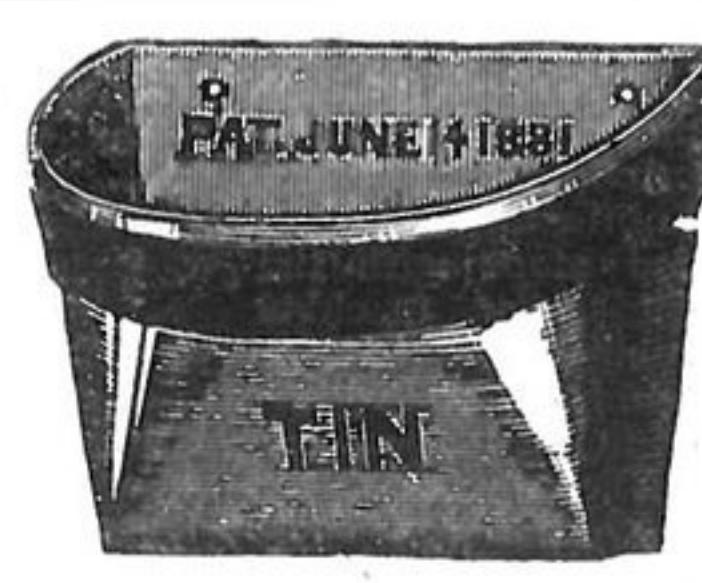
If you are interested ask for Prices. Manufactured only by

W. P. MYER, INDIANAPOLIS, IND.

16, 18 AND 20 EAST SOUTH STREET.

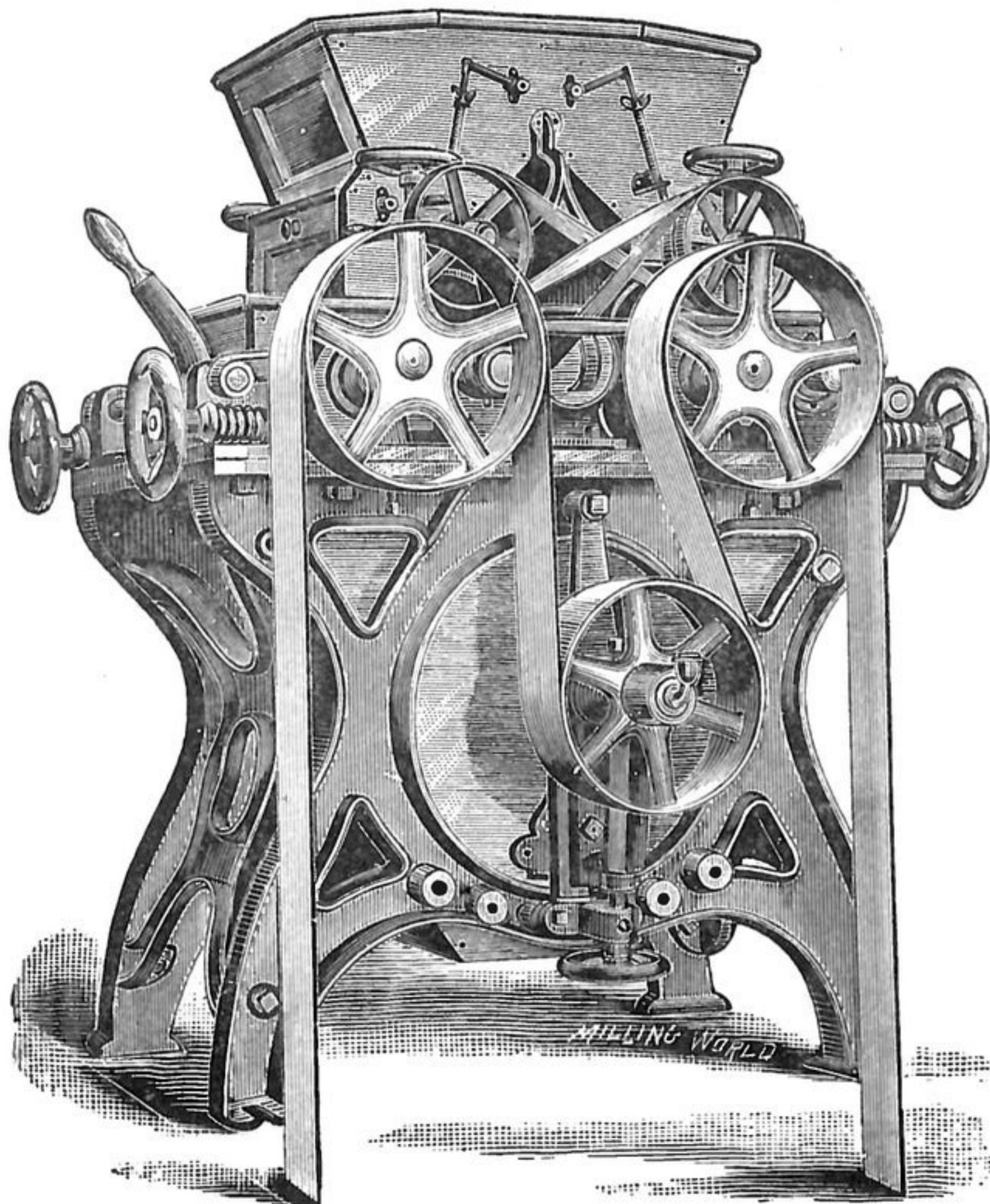


Made of sheet steel, with heavy band.



Made of tinned steel plate, with iron band.

JOHN HUTCHISON MFG. CO., Mill Builders and Mill Furnishers.



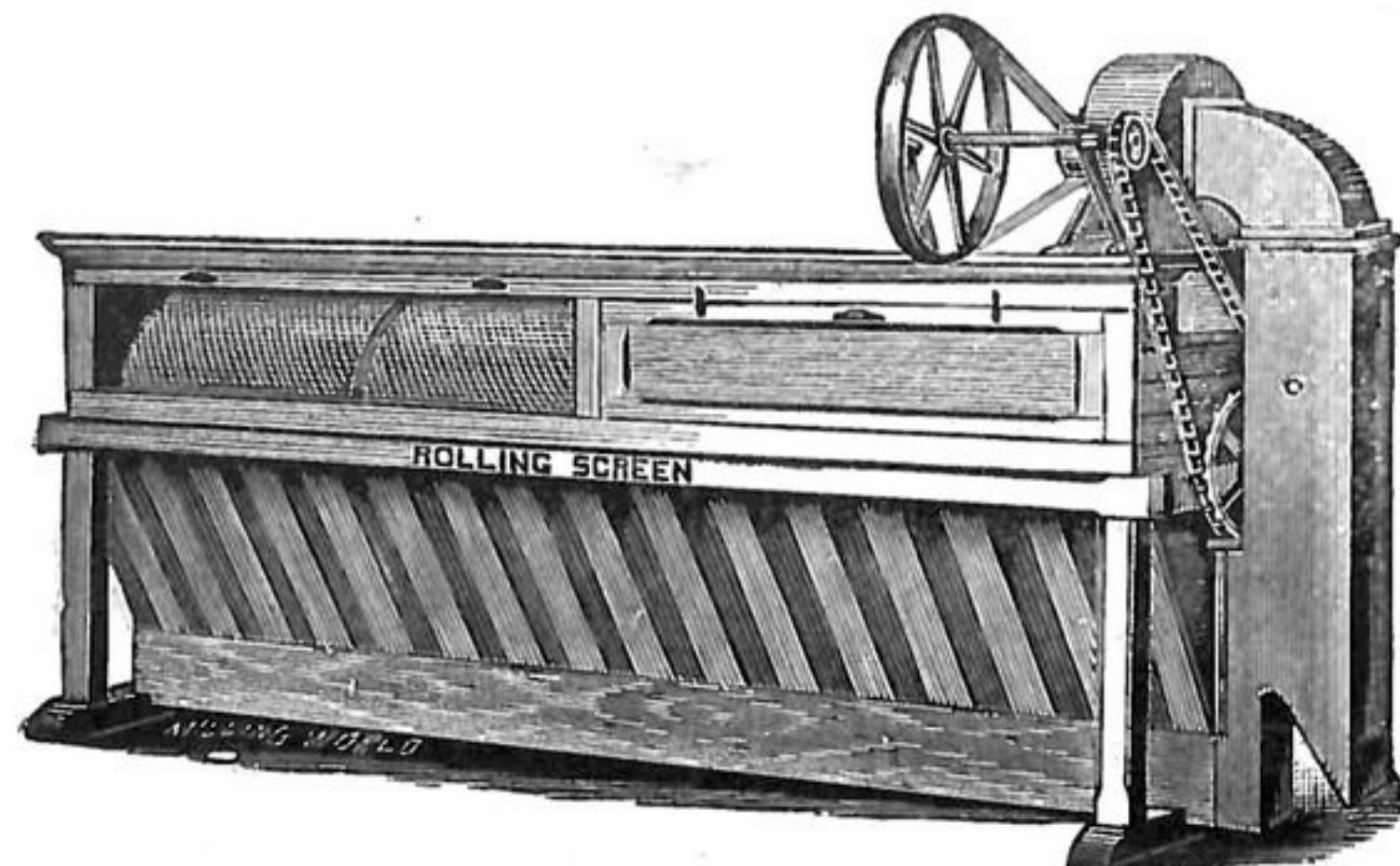
"The Rickerson." The original six inch 4 Roller Mill. We now own the patents on this mill and after greatly improving the mill manufacture them in four sizes:

6x12 inch.

6x15 "

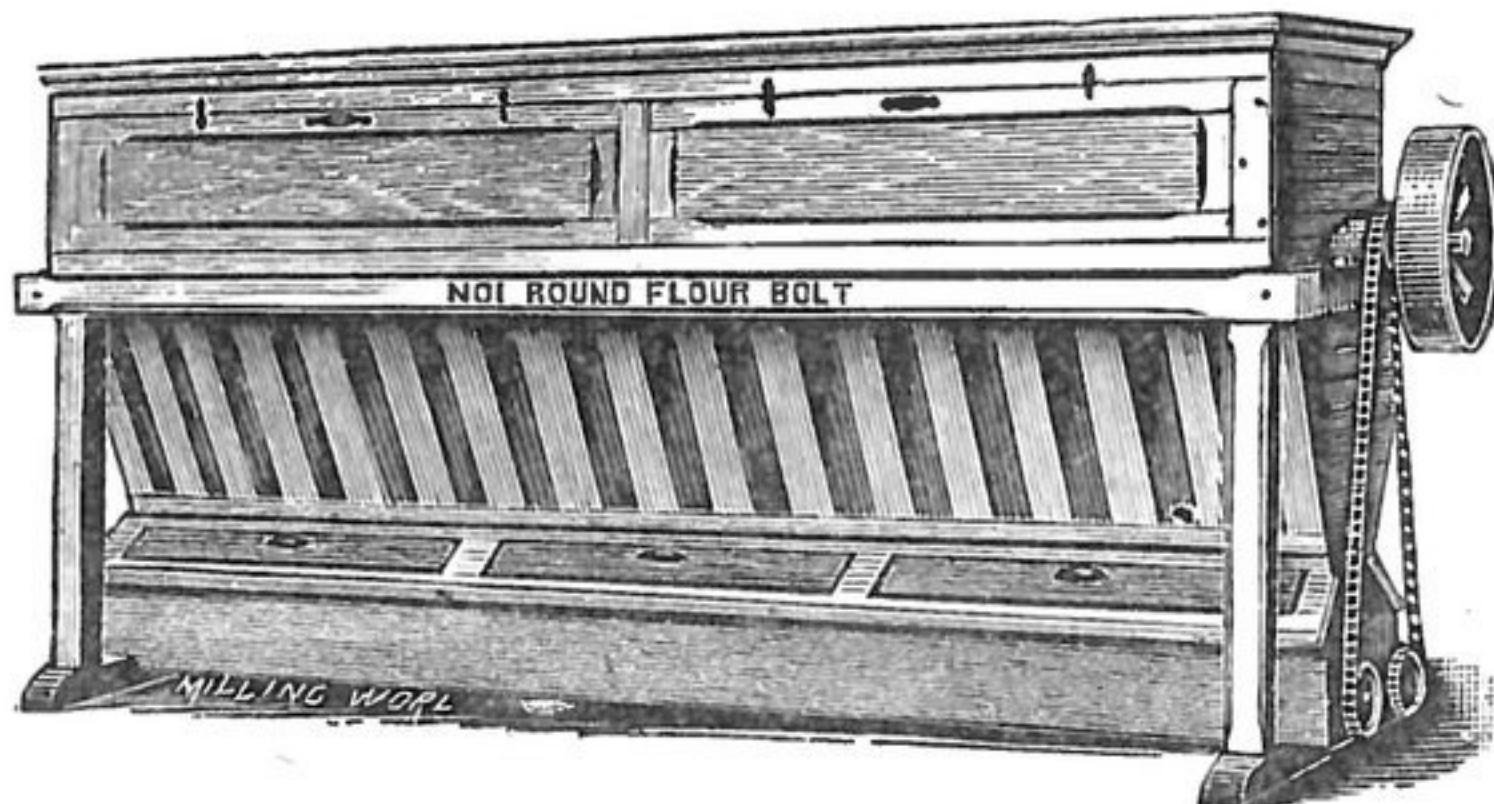
6x18 inch.

6x20 "

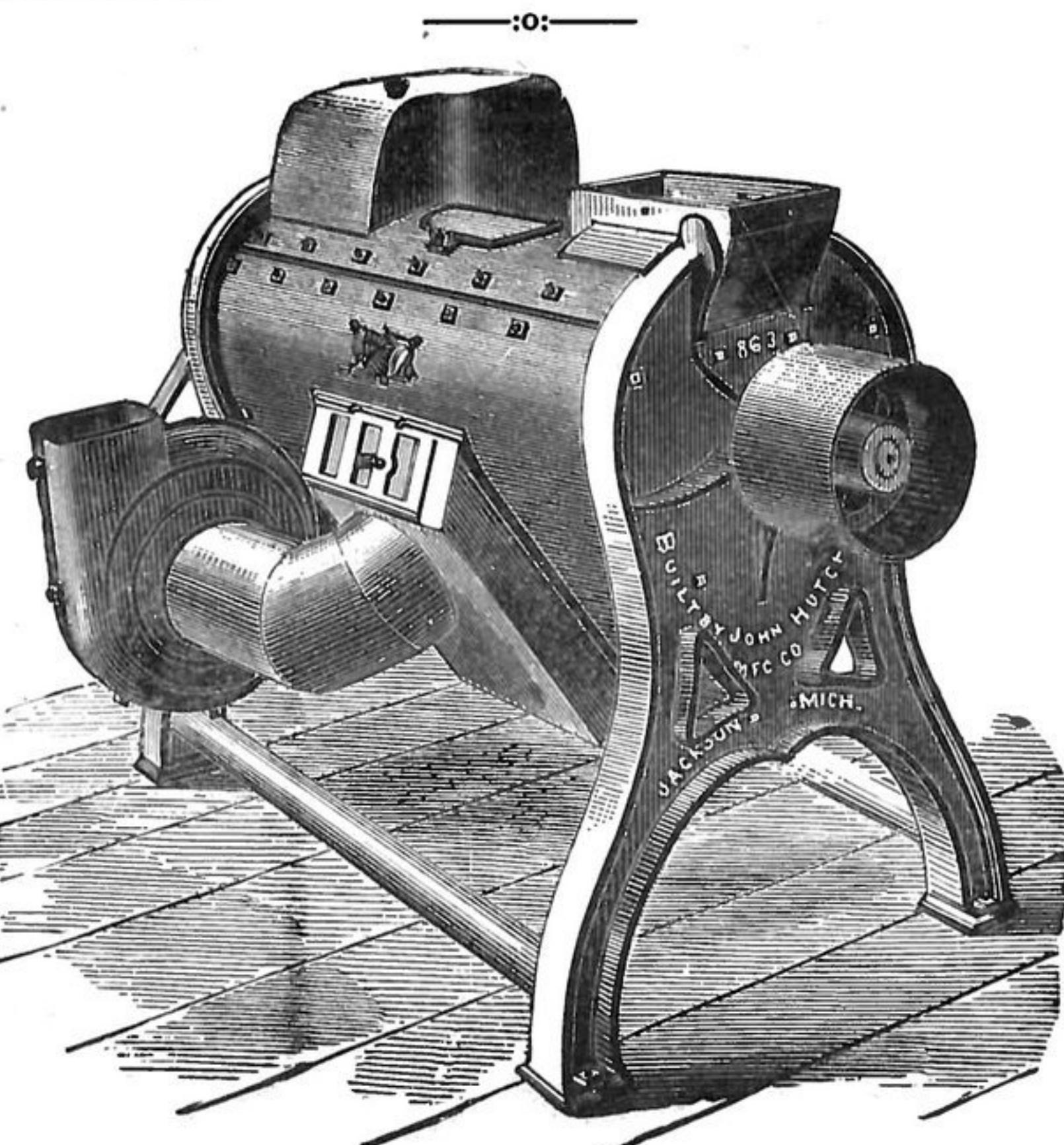


The above cut represents our New Rolling Screen, which is absolutely dustless and has as much scouring qualities as any two scouring machines now being made.

Send for Estimates for Our Full Roller Mills of any Capacity.



The above cut shows our New Round Slow Running Flour Bolt. We also build a Cylinder or Round Scalping Reel and we have lately built a number of new mills of medium capacity, using our Roller Mills, our Round Flour Bolts and Scalping Reels, getting better results than is usually obtained.



Hutchison's New Dustless Iron Corn Sheller, especially adapted for Mill and Elevator use.

—:ADDRESS ALL CORRESPONDENCE TO:—

John Hutchison Mfg. Co.

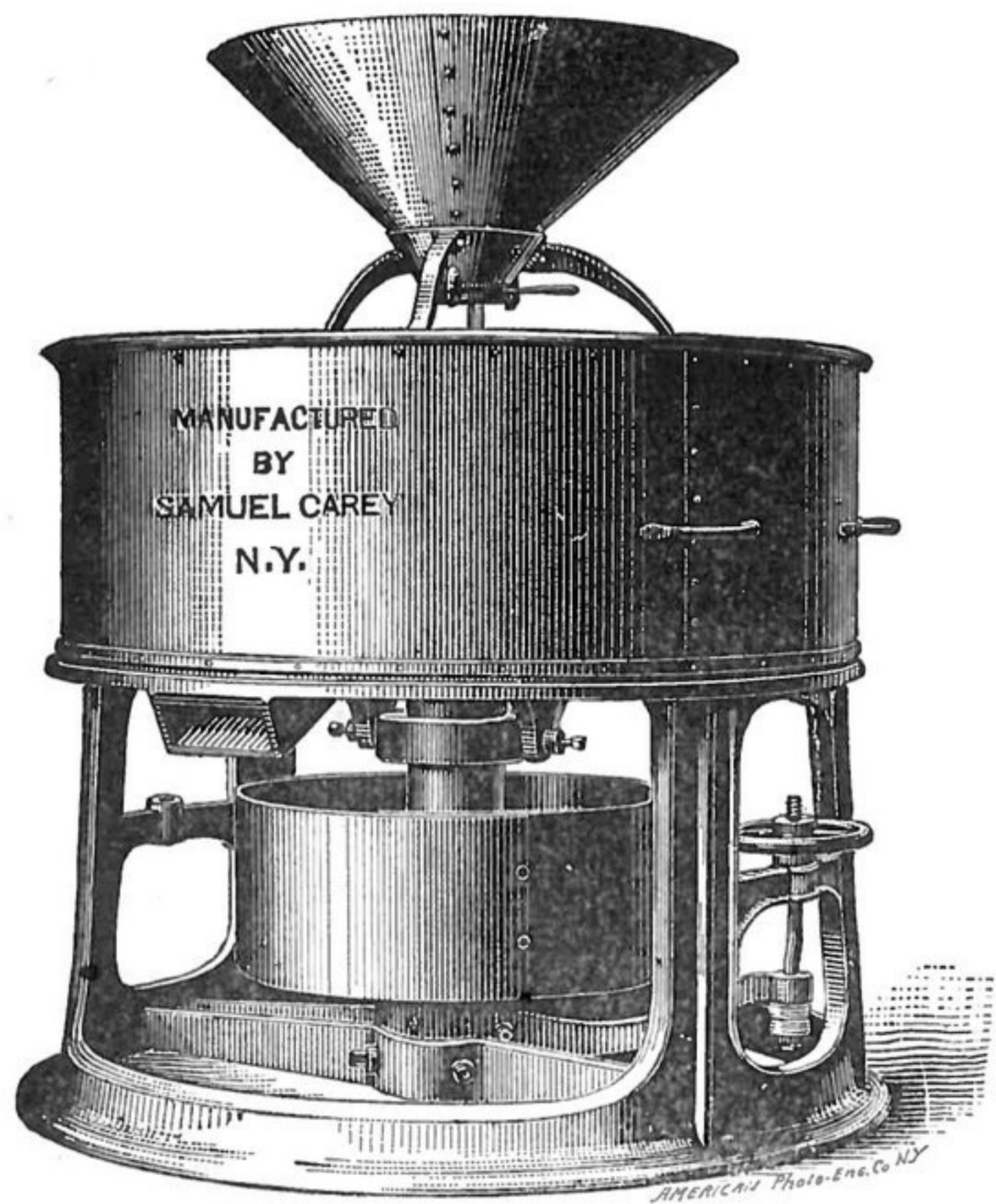
JACKSON. · · · MICHIGAN.



PLEASE NOTICE.

Our patents not only cover Seamless, Drawn, Stamped, Pressed or Forged Elevator Buckets; but also Pre-Date and Cover Round-Cornered Elevator Buckets when made Seamless, and are the Only patents ever issued in the World for a Pressed, Stamped, Drawn or Forged Seamless Elevator Bucket.

THE AVERY STAMPING CO.,
Successors to The Avery Elevator Bucket Co.,
Cleveland, Ohio, U. S. A.

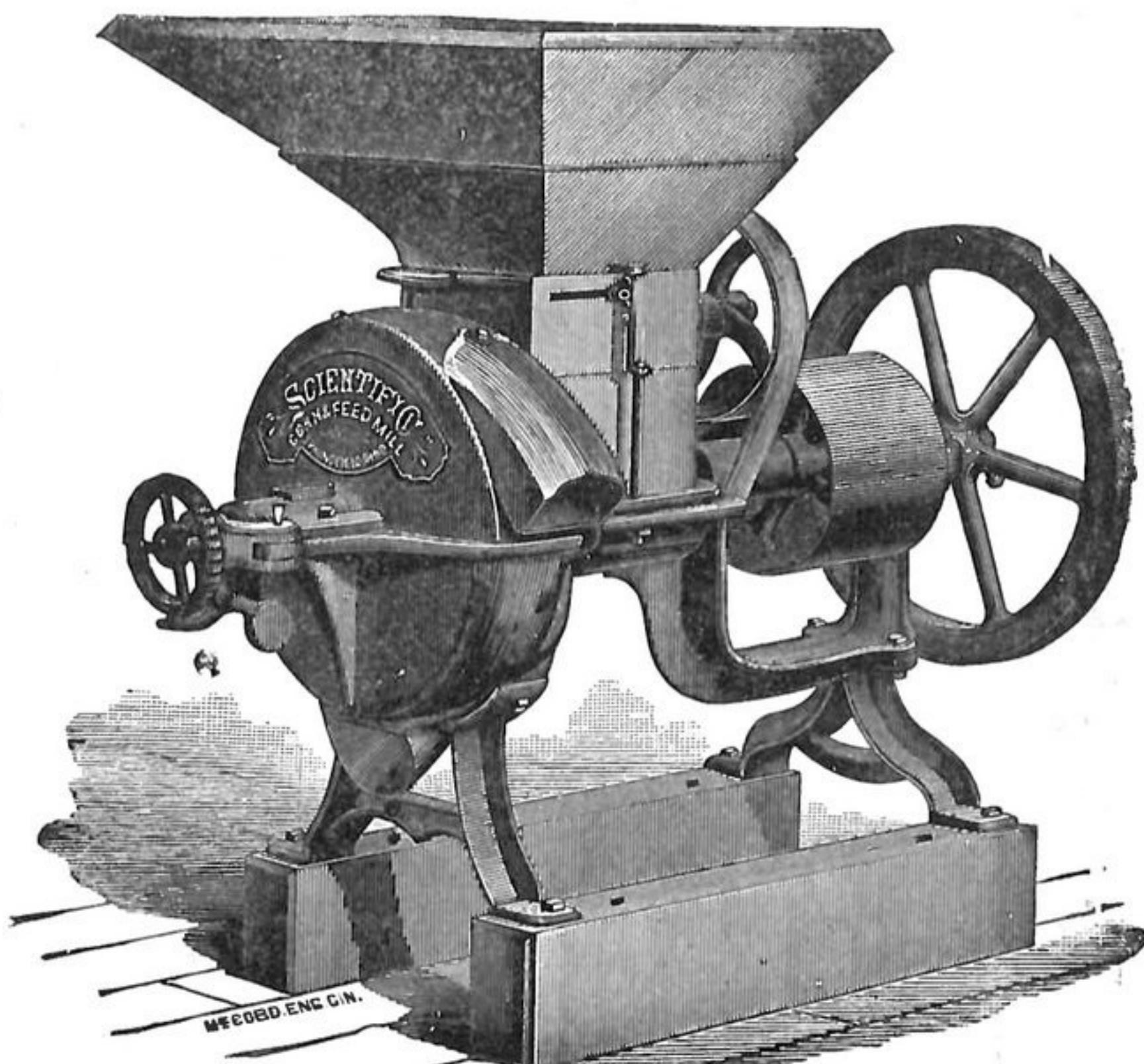


SELF-TRAMMING PORTABLE MILL BEST GRINDING MILL MADE. BOLTING CLOTH WRITE FOR DISCOUNTS.

BURR MILLSTONES CHEAP.

Send for "SPECIAL PRICES," Giving Size
Wanted, to

SAMUEL CAREY, 17 BROADWAY, NEW YORK



THE SCIENTIFIC GRINDING MILL.

POSITIVELY THE BEST MILL ON EARTH.

GRINDS PERFECTLY, EAR CORN, SHELL CORN,
AND ALL GRAINS.

GRINDING PLATES A SPECIAL METAL

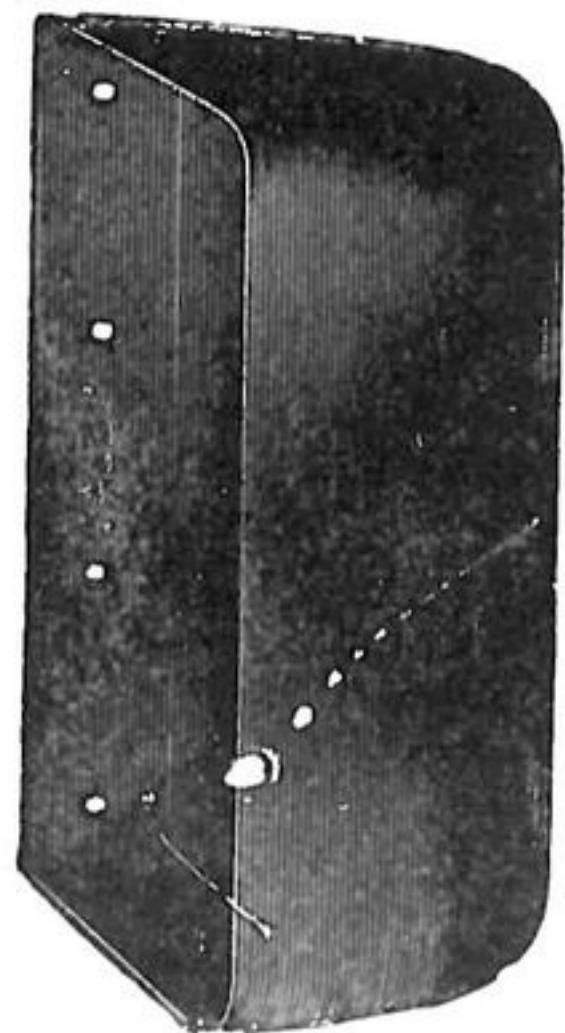
*Hard as Steel, Guaranteed to Grind from Five to Eight
Thousand Bushels before wearing out.*

SEND FOR ILLUSTRATED CATALOGUE, PRICES, ETC.

THE FOOS MFG. CO.

SPRINGFIELD OHIO.

STILL ON TOP.



Perhaps the HIGHEST COMPLIMENT that could be paid the "Salem" bucket is the fact that during the past few years ITS SHAPE HAS BEEN SO CLOSELY IMITATED by other manufacturers as to infringe our patented rights, but experience reveals the IMPERFECTIONS OF IMITATIONS, and we therefore take it as a FURTHER COMPLIMENT to the "SALEM" bucket that some of its old patrons who were *Induced to Try the Imitations have now Returned to the Salem Bucket, thereby Acknowledging it to be the Most Satisfactory.* Don't be deceived by other makes of buckets that are claimed to be "Just as Good." Insist upon having the ORIGINAL AND RELIABLE SALEM BUCKET. All legitimate Salem buckets are plainly marked with the word

SALEM

W. J. CLARK & CO., SOLE Manufacturers **SALEM, OHIO.**
THORNBURGH & GLESSNER, General Agents, CHICAGO, ILL.